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TABVLÆ PRIMI MOBILIS ANDREÆ ARGOLI.

MAXV [illegible]

R.


PHÆNOMENA
ARITHMETICA
RATIO
GEOMETRIA
OBSERVATIONES
PRIMI
MOBILIS
TABVLÆ
ANDREÆ
ARGOLI
EQVITIS
&c.
A ARGOLI
EPHEM
D. CRIT
Giu. Georgi f.

MAX

ILLVSTRISSIMIS D. D.

MARTINO,

ET

LVDOVICO

FRATRIBVS VIDMANNIS

NOBILIBVS VENETIS, COMITIBVS, &c.

Petrus Maria Frambottus Felicitatem.

NOn primum hoc recenſque domus noſtræ erga vos fidei, ac venerationis pignus. Nam parens olim veſtra facilitate, ac manſuetudine fretus, auſus eſt tantæ nomina famæ typis ſuis præſcribere, & inde operi claritatem circumfundere, vnde Venetæ rei ingens decus, ſcriptoribus ipſis par dignatio, & pretium accedit. Etſi enim auctor, qui & aliàs hoc inſigni decoratus prodiit, & hodie opera noſtra eodem titulo ſe circumſpicit, per ſe clarus pollenſque ſit, nec prælum modo noſtrum, ſed omnium ingenia, atque admirationem

fati-

fatiget, iterum in ſcenam, atque ora hominum productus, veſtris auſpiciis ſibi caueæ fauorem, ac veteres plauſus pollicetur, in quorum venerationem ſonantibus cuneis Theatra conſurgunt. Alioquin operis magnitudine, atque argumenti maieſtate, ſibi blandiebatur, quod veluti in ſacrarum ædium faſtigio nomen veſtrum inſcriberetur. Quippe Cœli templa ſerena luſtrat, atque in ipſam Mundi arcẽ iniecta contemplatione, naturæ culmen, ſiderum motus, & ipſum mouens percenſet, ac fatorum arbiter, mortalium ſpes metuſque verſans, ſupera arcana recludit, atque ex illo æternæ lucis fonte claritudinem vobis adflat, a quibus ipſe iubar acceptu-rus eſt. Inde ſpes mihi, in tanto vtrimque fulgore, laborem meum, licet atramento & plumbo cenſeatur, nec obſcurum nec inglorium fore, qui ſicut obſequium cultumq; Vidmannæ gentis cum paterna hereditate creui, ita officio, ſiue potius pietate erga vos, nemini mortalium, ac ne ipſi quidem parenti conceſſurus ſum. Valete Patauij Nonis Iulii MDC LXVII.

AV-

AVTHOR LECTORI.

IN inconſtanti (lentiſſima tamen) Ecliptica ab Aequatore digreſſione, eam pro noſtris Tabulis ſeligere par erat, quæ temporum noſtrorum obſeruationibus maximè conſentanea foret. Tychonis Obliquitatem ut grandiuſculam damnat cæterorum Obſeruatorum fides minus dubia, quoniam plurium, & peritiſſimorum. Regiomontano potiùs adſtipulantur Landgrauius Haſſiæ, Grunbergerus, Graſſus, Collegium Romanum, Lansbergius, Hortenſius, Gaſſendus, Mathematici Londinenſes, Andreas Morettus Academiæ Patauinæ Mathematicus, vt in omnibus, ita in obſeruationibus accuratus, cuius lucubrationes Aſtrophili non abſque vtili iucunditate breui deguſtabunt; cæteriquè Aſtronomi primæ notæ, qui idipſum ex ipſius Tychonis obſeruationibus ſe elicere profitentur. Quod ſi non lubrica ſed conſtans ſit Solaris Orbitæ inclinatio, vt Keplerus ſuſpicatur, noſque cum plurimis exacti iudicij Profeſſoribus; non ſecus ac eius Eccentricitas, quam firmam experimur contra Antiquorum ſomnia: quantò magis illi erit inſiſtendum, quæ neotericorum experimentis congruat in pauciſſimis tantùm ſecundis diſſentientibus? Hanc nos graduum 23 cum dimidio aſſumpſimus: verùntamen vt noſter labor eorum etiam palato arrideat, qui ne lato quidem vngue à Tychone diſcedere piaculum arbitrantur, Declinationum Tabulam ad huius mentem accomodatam exhibemus, vt ea cum differentia Aſcenſionali & alijs, his præſto eſſe poſſit: in quorum gratiam ſubdidimus etiam ſingulis Canonibus Quæſitorum inveſtigationem ac proinde Tabularum ſtructuram per Triangula; vt quam quiſque rationem magis probaret, eam ſequi integrum cuique foret; licet eos omnes ipſarum Tabularum apparatu liberè vſuros confidamus, quibus unius, aut alterius minuti diſcrimen vix alicubi ſubeſſe poſſe, Directiones verò ipſas nunquam centrales (vt aiunt) euenire, ratio, & experientia ſuaſerint. His fruere Lector, & Vale.

IN-

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FINIS.

QVID DIRECTIO

Quotuplex; qui Significatores, & qui Promiſſores.

Cap. I.

DIrectio, ſeù Dirigere eſt inquirere arcum Æquatoris interceptum inter duo loca in Cœlo; artificioſa nempè menſura itineris, quod motu. Primi Mobilis abſoluit Promiſſor, & locus inferior quouſque ad Significatorem perueniat, & locum ſuperiorem; hinc duo loca in Cœlo ſunt concipienda, quæ ab Aſtronomis Significator (ſiuè Planeta,ſiuè alius Eclipticæ locus is ſit) qui aliquid in Cœlo ſignificet, vt Vitam, mores, fortunas, vel alia; & Promiſſor qui decernat, & polliceatur bona,vel mala in illa re denotata à ſignificatore,quandò ad eumdem ſignificatorem peruenerit; ſic ſignificator geret (exempli gratia) vicem Creditoris recepturi aliquid à Promiſſore, certo, & determinato tempore, cuius ſpatium Directione metimur; vt in Vitæ ſpatio adſunt Apheta, Hylech, ſeù ſignificator Vitæ; & Anæreta, ſeù abſciſſor, quandò Anæreta peruenerit ad Aphetam mala decernet in Vita.

Duplex ſtatuitur ab Antiquis Directio; Directa, qua promiſſor ducitur ad ſignificatorem per Aſcenſiones ipſius ſignificatoris;& Conuerſa,qua ſignificator deuoluitur ad promiſſorem per Aſcenſiones eiuſdem promiſſoris, quàm directionem tribuerunt Parti fortunæ,& Planetis retrogradis, & Ptolemæus Apheta conſtituto inter ſeptimam domum, & Medium Cæli, cap. de Vitæ ſpatio; quæ poſtrema (pace omnium) commentitia eſt, & falsò excogitata: cum enim directio ſit deuolutio promiſſoris motu Primi Mobilis ad ſignificatorem conſtitutum immobilem, ridiculum eſt imaginari, poſſe ſignificatorem, & locum ſuperiorem duci contra motum Primi Mobilis ad promiſſorem, & locum inferiorem; Cæterùm vanum eſt aſſerere Ptolemæum hoc non cognouiſſe, quod ex eo conſpicitur, quòd poſito Apheta inter Cæli medium, & Occidentem vnicum tantum ſtatuit Anæretam,ſcilicet Occidentalem angulum, ſciens eandem eſſe hanc directionẽ Aphetæ ad gradum Occidentis (quam placuit conuerſam appellare)& directionem lineæ Orientalis, & Aſcendentis ad oppoſitum loci Aphetæ? quorsùm enim ſi hæc directio eſſet realis,alios occurſus maleficos radiorum,& corporum Planetarum pro Anæretis, & abſciſſoribus non conſtituiſſet? de quibus proferens ea verba, *non impingunt in locum Apheticum*, ideſt non poſſunt duci ad Aphetam motu primi Mobilis; monere nos voluit vnicam tantùm eſſe veram directionem, eamque directam cùm vnus ſit motus Primi Mobilis, quo componitur, in qua locus inferior ducitur ad ſuperiorem, & promiſſor ad ſignificatorem; abolendum eſt ergò hoc in poſterum directionis conuerſæ nomen, vt fictitium, & ſine fundamento vſurpatum.

Notandum circà hoc, quod quamuis clarum ſit,& notiſſimum in directionibus promiſſores deduci ad ſignificatorem, & Saturnum (verbi gratia,) eiuſque radios deuolui ad Solem,vel alium ſignificatorem; communiter nihilominus dicimus directiones Solis ad corpus, & radios Saturni, ſicut Medium Cæli ad radios Martis, & ſimilia; quod loquendi genus inueteratæ conſuetudini relinquimus, ſcientes

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promiſſores deuolui ad ſignificatores; non è contrà, vt diximus.

Ptolemæus 3. Quadripart. cum perpenderet ſumma induſtria, omnia, ac ſingula, quæ Natis accidere poterant circà corporis affectiones, animi mores, fortunas, & reliqua intrinſecus, vel extrinſecus aduenientia, poſſe acquiri ex Sole, Luna, Parte fortunæ, Aſcendente, Medio Cæli, hos quinque tantummodò ſtatuit ſignificatores, ex quorum directionibus accidentia omnia tàm proſpera, quàm aduerſa eſſent euentura, prout maleficis vel beneficis occurriſſent; quam Ptolemæi ſententiam, & conſtitutionem omnes ſectati ſunt; addiderunt aliqui pro ſignificatoribus reliquos Planetas quinque etiam, Saturnum, Iouem, Martem, Venerem, & Mercurium, qui mala, vel bona decernerent in ſuis ſignificatis; nec non cuſpides omnium domorum cæleſtium pro ſua ſignificatione, vt ſecundam domum pro diuitijs, & ſic de reliquis: nec credimus omninò abſquè fundamento, cum ex his (experientia duce) plurima conſpiciamus; Sectatores Arabum (præter Partem fortunæ) alias innumeras partes dirigunt, quas tamquam falſo commentas omnino reijcimus ab hoc munere.

Promiſſores ponit Ptolemæus cum Antiquis corpora Planetarum, & eorum radios quoſcunque, eorum Antiſcia, Imperantia, & Obedientia; addunt alij recentiores terminos Planetarum, Stellas fixas, Nodoſque Lunares, videlicet Caput, & Caudam Draconis, vt cum experientia optimè conſentientes; & aliqui etiam cuſpides Domorum.

DE MOTV REALI IN DIRECTIONIBVS, & duplici via eas componendi. Cap. II.

ÆTerna Dei Optimi Maximi prouidentia Inferiorem hanc machinam tradidit ſecundis cauſis gubernandam, interioraq; omnia, & exteriora ad vſum hominis venientia à Deo mediantibus Angelis, & corporibus cæleſtibus diſpenſantur, quorum ferè omnia oſtendit nobis (vt benè Albert. Mag. in ſpeculo) in libro vniuerſitatis, qui eſt pellis Cæli, in qua ſummo ordine iuſſu tanti Opificis non ſolum delineati apparent influxus ſinguli; ſed tempora, & termini, qui præteriri non poſſunt; qui habentur ope directionum, quæ ſunt executrices dictorum influxum, & diuinæ Voluntatis; hinc apparet quàm perbellè inferiora Deus condiderit, & ſuperiora, quantumque hallucinentur contendentes motum in directionibus eſſe fictitium, nec verum; cum realis ſit, & primus Primi Mobilis (vt diximus) ex Oriente in Occidentem concitatiſſimus, patratus tempore emerſionis cuiuſuis in hanc Mundi lucem, quamuis de nouo tempore euentus idem non abſoluatur: nàm ſicut in Ortu Nati, ex ſitu, & aſpectibus Planetarum, repertoque ſigno in Horizonte in circumuolutione tunc temporis Primi Mobilis, remanſerunt impreſſæ in Nati corpore actiuæ, ac paſſiuæ qualitates elementorum, nec non diſpoſitiones diuerſæ ex Aſtris productæ, quæ raro, vel nuſquam delentur niſi poſt mortem; ſic etiam motus ille, ortus, & deuolutio promiſſoris ad locum ſignificatoris eodem tempore realiter abſolutus eſt, & remanſit etiam impreſſus in nato, effectum ſignificatum producturus pro diſtantia graduum æquatoris inter ſignificatorem, & promiſſorem, ac itineris Primi Mobilis ab vno loco ad alium tribuendo pro quolibet gradu certum temporis ſpatium experientia comprobatum; ſed

de

de his, aliiſque permultis circa hanc materiam à nemine conſideratis alibi agemus cum hic ſolùm compendioſam tractationem abſoluere intendamus.

Reiectis omnibus directionum modis ab antiquis excogitatis, vt à ratione, & experientia latè diſsonis, duplex relicta eſt Aſtronomis via, qua directiones componere, & futurorum accidentiũ tempora prædicere profeſſi ſunt; Ptolemæi vna, quam 3. Quadripart. ægrè, ac cõfuſiſſimè docuit, & quam aliqui pauci ſectati ſunt; altera Aſtronomorum aliorum, quam primo redegit in Tabulas Ioannes Regiomontanus Germanus Rationalem appellatam; & nos in noſtris Tabulis ita explicauimus, vt nil aliud in poſterum deſiderari poſſit; extant in opere noſtro Tabulæ Declinationum, Aſcenſionum Rectarum, & Obliquarum ab 1. grad. Altitudinis Poli, vſque ad 60. cum latitudine 8. grad. tàm Septemtrionali, quàm Meridiana, necnon Circulorum poſitionis pro tota Europa inſeruientium; quibus mira facilitate directiones componuntur; vtramque viam in hoc tractatu docebimus, difficultateſque omnes circa hanc materiam contingentes diſſoluemus, reiectis aliorum philaterijs, & verboſa petulantia; vt cuilibet liberum ſit alteram viarum ſequi, quam libuerit. Cæterum viam poſtremam Regiomontani, & in noſtris Tabulis expreſsam ſectantur inſigniores Aſtronomi, & Mathematici noſtri temporis, ſectatus eſt Tycho, Ioannes Keplerus, Schola Danica, Ioannes Antonius Maginus, aliique, & nos 50. ab hinc annis, quibus has materias exantlauimus, eamdem profeſſi, nunquam quidquam ſcrupuli reperimus, quo animus ad ſententiam mutandam ſtimularetur, cognoſcentes veris fundamentis, rationibus Mathematicis, & demonſtrationibus conſtructam. Deumque teſtamur hæc veritatis ſtimulo ſolummodò admonuiſse, non autem, vt noſtras Tabulas magnificantes, ab aliorum ſcriptis aliquid detrahamus; quod experientia eluceſcet: nàm rectificata optimè genitura, temporum diuiſiones cum euentibus apprimè congruentes conſpicientur.

DE LATITVDINE SERVANDA in Directionibus. Cap. III.

POtentiores Radij ſtellarum quatuor reperti ſunt, quibus inuicem lumen, & qualitates ſibi communicant, Sextilis videlicet, Quadratus, Trinus, & Oppoſitus: Coniunctio enim impropriè dicitur aſpectus. Sextilis dictus aliquandò ſexangularis, aliquando hexagonus, eſt diſtantia duorum locorum per circuli ſextantem, ideſt grad. 60. indicatur hoc character ✶. Quadratus quadrangularis, & tetragonus notatur hoc ſigno □ eſt diſtantia per quartam partem circuli, ſiue gr. 90. Trinus, trigonus, & triangularis, eſt diſtantia per tertiam partem circuli, ideſt grad. 120. ſic ſignatur △. Oppoſitio eſt diſtantia ſtellarum per medietatem circuli, ſiue gr. 180. ſic deſcribitur ☍. Coniunctio vero ☌.

Propter perperàm interpretantes Ptolemæi ſcripta (etiam ſi inter Mathematicos hæc hæreſis nunquàm viguerit) orta eſt controuerſia, an in directionibus abſoluendis ſeruanda latitudo promiſsorum, & ſignificatorum, an abolenda; Omnes qui Matheſeos gnari, artem veris fundamentis profitentur primæ ſententiæ ſunt addicti, latitudinem eſſe omnimodo ſeruandam, vt neceſſariam euidentiſſimè; aliqui pauci, qui vix à limine artem ſalutarunt, contrariam partem ſectã-

tes figmentis Tyronum animos à veritate auertunt, ac ita blaterant, vt nos etiam puduerit multoties cum aliquibus de hac materia alloqui; cum nullam rationem aliam adducant, quàm non eſse ſeruatam à Ptolem. 3. Quadripart. in exemplis Directionum. Breuiter nos hanc difficultatem paruam enucleabimus, ad hoc, vt inter profeſsores in poſterùm nullus relinquendus ſit controuertendi locus.

Certiſſimum eſt, ac optica ratione conſpicuum etiam cæcutientibus inæqualiter oriri ſtellas cum latitudine, & ſine, vt in Sphæra materiali poterit obſeruari; nàm in Sphęra recta, & degentibus ſub Æquinoctiali vbi Poli interſecant Horizonta, nec alter Polus plus altero eleuatur Stellæ à principio ♑ ad finem ♊ ſecŭdùm ſeriem ſignorum habentes latitudinem Borealem citius oriuntur, quàm gradus eclipticæ ſine latitudine, in quibus fuerint conſtitutæ; & obtinentes latitudinem Auſtralem tardiùs oriuntur, quam dicti gradus eclipticæ; A principio autem ♋, vſque ad extremum ♐, priùs oritur eclipticæ gradus, quàm Stella cum latitudine Meridiana; In regionibus verò obliquum Horizontem habentibus, & quibus Polus Boreus eleuatur, vt in noſtris regionibus Stella retinens Borealem latitudinem priùs oritur, & tardius occidit, quàm locus eclipticæ: è contra verò retinens Auſtralem orietur tardiùs, & citiùs occidet quàm eclipticæ locus.

His veris ſtantibus Promiſſor nullo modo poterit dici ductus ad ſignificatorē, niſi oriatur cum illo gradu ſignificatoris; at oritur diuerſimodè cum latitudine, & ſine; obſeruandum ergò eſt, quo tempore cum latitudine cum dicto ſignificatore oriatur; quomodo enim aſſerere poſſumus Martem, vel Saturnum, verbi gratia, peruenite ad Orientem, & eſſe in linea Orientali, ſi ob latitudinem Borealem eſſet ſupra, vel cum Meridiana ſub Horizonte momento, quo locus eclipticæ ſine latitudine eſt in centro, & linea Orientali?

Dicunt (pauperes conſilio) virtutem eſſe in illo gradu eclipticæ in quo eſt exēpli gratia promiſſor Mars, vel alius, qui gradus eſt maximè conſiderandus; noſque concedimus; ſed tempus oſtendendi talem virtutē aduenier, quandò idem Mars, & promiſſor orietur in loco ſignificatoris; Solis virtus eſt excalefacere, ac illuminare: has autem operationes Sol non exequetur, niſi ſupra Horizontem attollatur; ſimili ratiocinio vſi ſumus in collocandis fixis in figura Cæleſti, quæ (non ſecus, ac planetæ) ſunt conſtituendæ abſque latitudine in gradibus eclipticæ in quibus reperientur: diuerſimodè autem obſeruandum in Directionibus, Ortibus, & Occaſibus earum, tunc enim omnimodò earum latitudo eſt obſeruanda.

Tandem cum apud Sciolos plus poſſint ſimilitudines, & exempla quàm rationes: quæque ex ſuperioribus cauſis producuntur eumdem habeant ordinem in noſtris corporibus, ac elementis; adducamus exempla, quæ etiam Hæreticos in Aſtronomia, ad fidem reuocarent. Arcturus procellas, grandines, pluuioſamquè conſtitutionem producit, præſertim ſi Marti, Lunæ, aut Saturno configuretur, virtus eſt in gradu eclipticæ 19. ♎, effectus nihilominus non exequetur Arcturi ſidus in ortu grad. 19. ♎, ſed cum orietur grad. 8. ♎, cumque oritur Romæ ob latitudinem, quàm retinet Borealem.

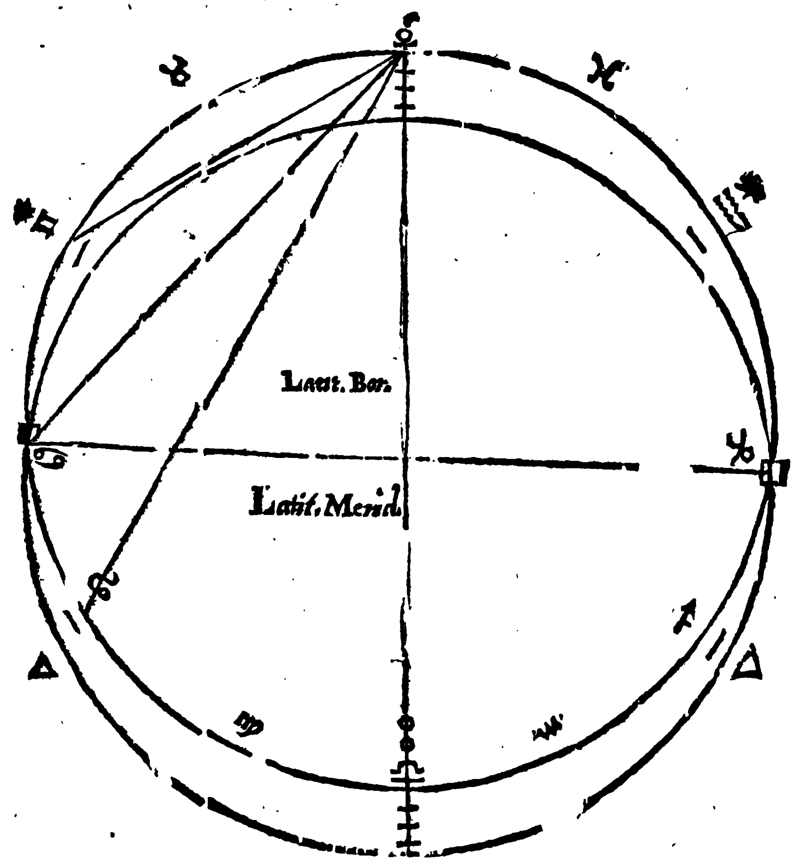
Canis maior Syrius Stella in Cœlo maxima anno 1644. eſt in grad. 9. m. 11. ♋, cum latitud. Auſtral. grad. 39. 30'. & Cælum mediat cum grad. 6. 50'. ♋ in eius exortu feruent Maria, æſtus contingunt maximi, ſtagna mouentur, piſces ſyderantur, canes in rabiem aguntur, fluctuant in dolijs vina, omniaquè ex Plinio, & experientia alterantur, hos effectus producit cum ad Oriētem peruenerit, & orietur

tur Coſmicè cum Sole: orietur autem Romæ cum grad. 7. 23′. ♌, & non cum 9. 11′. 69; quod neceſſariam eſſe latitudinem arguit; quod ſufficiat cum ſtultitiæ munus ſit contra neſcientes principia prima inuehi circa apparentem veritatem. Cæterùm eorum ſubterfugia delentur facilius; ſtultum enim eſt aſſerere priſcis ſæculis Aſtronomos latitudines non cognouiſſe; ſtultius arguere Regiomontanum, vt tantæ nouitatis authorem, cum antiquiſſimus fuerit earum vſus, idemque Regiomontanus vir doctiſſimus referat aliorum ſententias, & præſertim Blanchini, quam inferius examinabimus. Quod autem Ptolemæus in directionum exemplis 3. Quadripart. latitudine vſus non fuerit, quid mirum? cum eius exempla ſint de gradibus in linea ecliptica, promiſſoreſque, & ſignificatores ſtatuat in ecliptica? Si verò Planetas direxiſſet abſque dubio latitudine vſus eſſet, præſupponens iam cognitum latitudinem eſſe neceſsariam, cuius meminit cap. de applicationibus; de his, qui non nutriuntur in figura æquicrutia, alijſque in locis; & ſolùm fuit in ambiguo an in ſextili, & trino radio eſset obſeruanda, vt dicemus; & ſi tandem hanc exploſiſset, (quod non credendum in Artifice tanto) poterat (ſicut in aliis) Ptolemæus vt homo errare; ſicque ſilentium huic negotio imponimus.

Inter Aſtronomos rationales (iam conceſso latitudinem eſse ſeruandam in directionibus) orta eſt controuerſia an ſeruanda in aſpectu ſextili, & trino, & quomodò. Ptolemæus in fine 1. Quadripart. ſuperfluum duxit in his aſpectibus obſeruare latitudinem, ſectatoreſque rationem adducunt, conſiderandos eſse hos radios non quatenùs ex vna Cæli parte perueniant ad alteram: ſed quatenus ſimul iuncti concurrant in Centro terræ vbi angulum conſtituunt; qui vndecúmquè emiſſi, cum latitudine, ſeu ſine ſemper concurrunt. Ioannes Blanchinus rem altius enucleando paruam temporis intercapedinem in ſumendis his aſpectibus ſpretam à Prolomæo magnifaciens, in circulo maximo tranſeunte per centrum Stellæ latitudinem quamlibet habentis, & inclinato ſupra eclipticam ſumit omnium aſpectuum æquationem, oſtenditque quadratum ſemper fieri in ecliptica, ac ſine latitudine computandum; oppoſitionem retinere eamdem latitudinem, quam obtinet Stellæ corpus, licet contrariæ denominationis; trinum verò, & ſextilem medietatem latitudinis, ſextilem eiuſdem, trinum diuerſæ denominationis, probatq; radios non poſse conſtituere angulum in terra, niſi prius in Cælo fuerint verè coniuncti, quorum coniunctio ratione latitudinis ſuſcipit variationem; Huic opinioni addicti ſubſcripſimus cum Aſtronomis plurimis, vt cum obſeruationibus congruenti, quemadmodum pluſquam in mille Geniturìs fuimus experti, æquationes omnes Regiomontani, & aliorum reijcientes, vt abſque demonſtratione mathematica, & ratione excogitatis. In ſequenti Schemate conſpicitur Venus obtinere latitud. Borealis gr. 4. eius oppoſitum gr. 4. latitud. Meridionalis, cum cadat in partem oppoſitam; Trinum gr. 2. latitud. Meridionalis, cum incidat etiam in partem aduerſam; Sextilem grad. 2. latitud. Borealis, cum cadat in eadem parte corporis Veneris; Quadratos verò ambos fieri in ecliptica, ac latitudine deſtitutos.

SCHE-

SCHEMA DEMONSTRATIONIS.



QVÆ SINT NECESSARIA AD DIRE- ctiones, & de ordine Tabularum. Cap. IV.

IN directionibus componendis difficillima, & penè impoſſibilia quæ alij exclamant adhæc reducuntur; inuenire Circulum poſitionis ſtellæ, aut loci quẽ dirigere intendis ſi hic locus fuerit extra angulos ; & Aſcenſionem obliquam , cum Latitudine, ſi quam habuerit ſtella ; quæ in Tabulis Regiomontani non abſ-

que

que labore reperſuntur ob multiplicem tabularum ingreſſum; ſecus autem in noſtris cum labor abſolutus reperiatur ſine errore vt inferius dicemus.

Tabula declinationum hoc ordine eſt conſtituta; in altera facie deſcribitur latitudo Septentrionalis, in altera Meridiana à nullo gradu latitudinis vſque ad octo; in parte deſcendente Tabulæ incipit à ♋ vſque ad ♑; in parte aſcendente à ♑ vſque ad ♋ excluſiuè.

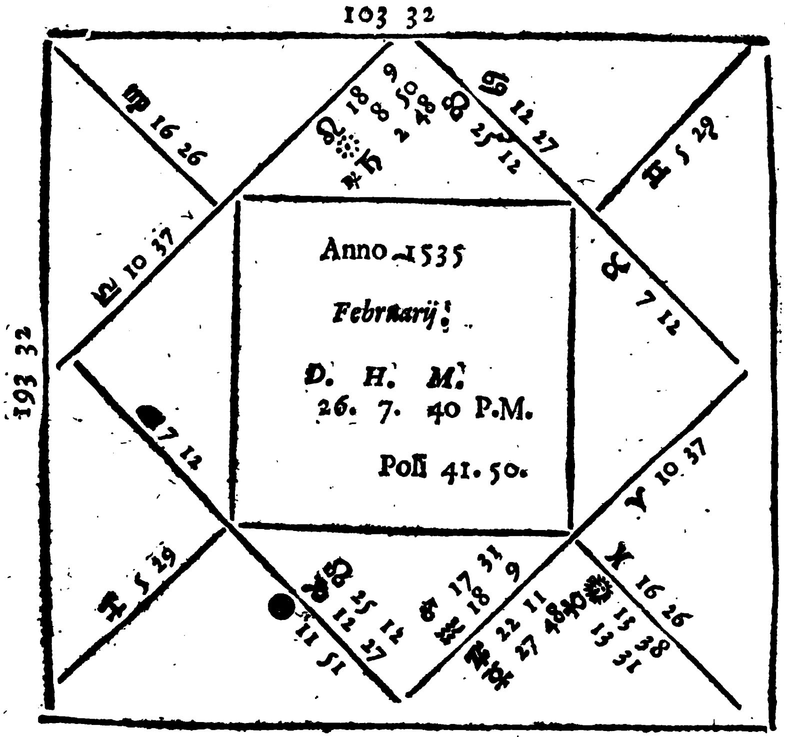
Tabulæ Aſcenſionum Rectarum, & Obliquarum à primo gradu eleuationis Poli Borealis ad 60. eumdem habent ordinem: in prima columna ſunt deſcripti gradus ſigni ſupra poſiti ab vno vſque ad triginta, & è directo aſcenſiones competentes cuilibet gradui ſine latitudine in columna 0; cum latitudine in alijs collateralibus hæc cum clara ſint maiore non indigent expoſitione.

In Tabulis Poſitionum (quas conſtruximus denuò ad ſingulas Poli eleuationes à gr. 36. vſque ad 60.) à latere ponuntur gradus declinationis Septentrionalis, vel Meridianæ ſuprà terram, vel ſub terra ab vno gradu vſque ad 32. & è directo in alijs columnis ſunt gradus diſtantiæ loci dirigendi à meridie, ſeu medio cæli: in prima columna ſupra ſignati ſunt gradus circuli poſitionis, quod ex proprio capite addiſces.

DE DECLINATIONE. Cap. V.

Declinatio eſt arcus magni circuli ducti per polos mundi, & centrum ſtellæ interceptus inter verum locum ipſius ſtellæ, & circulum Æquinoctialem. Ab Æquatoris diſtantia Declinationes ſumuntur: nam ſtella, quę deuiat ab Æquinotiali verſus Boream dicitur habere declinationem Septentrionalem, quæ verſus Auſtrum meridianam: vnde cum ab Æquinoctiali maximè diſtent Poli mundi gr. 90. ſicut ab ecliptica Poli Zodiaci: ob id neque latitudinem, neque declinationem quæuis ſtella obtinere poteſt maiorem circuli quadrante. Declinatio vocatur aliquandò aſcendens, aliquando deſcendens, & hoc ratione ſitus ſtellæ; nam à parte Auſtrali incedentes ſtellæ verſus Boream dicuntur aſcendentes; deſcendentes verò à Boreali verſus Auſtrum. Septentrionalis, & meridiana dicitur declinatio ex ſigno in quo ſtella cuius quæris declinationem reperitur; Septentrionalia ſigna ſunt ♈, ♉, ♊, ♋, ♌, ♍, Meridionalia ♎, ♏, ♐, ♑, ♒, ♓. Si ergo quæratur declinatio Planetæ, ſeu alterius loci abſque latitudine, tunc è directo gradus ſigni cuius quęris declinationem ſub columna 0 inuenies declinationem quęſitam, vt autem lucidè appareant, omnia exemplis illuſtrabimus in præſenti themate Excellentiſſimi Marci Antonij Columnæ Siciliæ Proregis, Regni Neapolis Magni Comeſtabilis.

EXCELLENTISSIMI MARCI ANTONII Columnæ Geneſis.



Latitudines			
♄	0	3	M. A.
♃	0	25	M.D.
♂	0	14	M.D.
☉	0	0	
♀	1	0	M.D.
☿	1	39	M.D.
☽	4	59	S. D.

Antiſcia		
♉	27	12
♏	7	49
♏	12	29
♎	16	22
♎	16	29
♏	2	12
♉	18	9

Sit Iuppiter in gr. 22. m. o. ♒. abſque vlla latitudine exempli gratia, & quæratur eius declinatio; tunc in parte tabulæ aſcendente in ſigno ♒ numerando à calce è directo grad. 22. ♒, ſub columna o. illicò reperies grad. 14. m. 13. declinationis. Declinatio etiam, verbi gratia grad. 3. m. o. ♌ eſt grad. 19. m. 33. quod in parte tabulæ aſcendente reperies ſimplici ingreſſu.

Si autem Stella vltrà integros gradus habuerit minuta; capienda eſt pars proportionalis pro minutis addenda, vel minuenda ab inuenta declinatione cum gradibus tantùm; quod hoc modo aptabitur in praxim. Angulus communis repertus cum gradibus integris conferendus eſt cum numero areali immediatè ſequenti, & de differentia accipienda eſt pars proportionalis competens illis minutis, quæ addenda eſt numero priùs inuento, ſi declinatio augeſcitur; minuenda verò ſi decreſcit, verbi gratia, Sol in præſenti figura Excellentiſſimi Marci Antonij Columnæ eſt in gr. 13. m. 38. ♓: Declinatio gr. 13. ♓, eſt grad. 6. m. 42. facta collatione cum grad. 14. ♓ cuius declinatio eſt gr. 6. m. 19. differentia eſt minutorum 23. ſubtrahend. cum declinatio minuatur: de his m. 23. capiendo partem proportionalem, pro minutis 38. vltra gradus 13. competunt minuta 14. ſec. 34. & pro faciliori doctrina min. 15. quæ ſubtrahenda ſunt à prius inuenta declinatione grad. 6. m. 42. & remanet vera declinatio Solis grad. 6. m. 27. hoc pacto:

	G.	M.
Declinatio Solis cum grad. 13. ♓	6	42
Declinatio Solis cum grad. 14. ♓	6	19
Differentia (minuenda) eſt	0	23
Pars proportionalis pro min. 38.	0	15
Ablata à declinatione inuenta cum .gr. 13. ♓. remanet vera declinatio	6	27

Quæratur item declinatio ♄ in grad. 2. min. 48. ♌. declinatio grad. 2. ♌ eſt gr. 19. m. 47. declinatio gr. 3. eſt gr. 19. m. 33. differentia eſt minutorum 14. ſubtrah. pars proportionalis competens minutis 48. eſt m. 11. quæ dempta à prius reperta declinatione grad. 19. 47. conſtituent veram declinationem gr. 19. m. 36.

	G.	M.	
Declinatio grad. 2. ♌.	19	47	
Declinatio grad. 3. ♌	19	33	
Differentia eſt	0	14	
Pars proport. pro m. 48.	0	11	minuend.
Declinatio vera ♄	19	36	

Superius dicta deſeruiunt locis nullam habentibus latitudinem: Si ſtella habuerit latitudinem, ſed graduum tantummodò; tunc ſimplici ingreſſu ſi latitudo fue-

rit Septentrionalis in dextra facie, ſi meridiana in ſiniſtra è directo gradus ſigni in quo ſtella permanſerit ſub numero grad. latitudinis habebis intentum; vt in grad. 3. ♌ ſub latitudinis Meridianæ gr. 4. declinatio eſt grad. 15. m. 59. & declinatio gr. 15. ♃ cum grad. 2. latitud. Septentr. eſt grad. 20. m. 41. Si adſuerint etiam minuta latitudinis vt contingit aſſiduò, indaganda eſt differentia inter numerum repertum & collateralem; & capienda eſt pars proportionalis pro minutis latitudinis addenda quidem ſi collateralis fuerit maior, minuenda ſi minor. Exempli gratia quæratur ♃ declinatio, qui ſit in grad. 22. m. 0. ♒ cum gr. 0. m. 25. latit. merid. Fuit inuenta declinatio ♃ gr. 22. ♒ ſub col. 0. gr. 14. m. 14. facta collatione cum collaterali ſub columna 1. gr. latitudinis meridianæ, cuius declinatio eſt gr. 15. m. 11. differentia erit m. 57, adden. cum numerus collateralis ſit maior, de quibus capiendo partem proportionalem pro m. 25. latitudinis competent m. 24. cum aliquibus ſecundis addenda numero prius reperto, ſcilicet gr. 14. m. 14. & ſic conſtituent declinationem gr. 14. m. 38.

	G.	M.
Declinatio gradus 22. ♒ cum lat. merid. gr. 1	15	11
Declinatio gradus 22. ♒ cum latit. gr. 0.	14	14
Differentia eſt	0	57
Pars proportionalis pro min. 25. (addenda) eſt	0	24
Vera declinatio cum grad. 22. m. 25. ♒ erit.	14	38

Alterum exemplum. Quæratur declinatio grad. 4. ♌ cum grad. 3. min. 30. latitud. merid. Sub columna gr. 3. merid. latitud. è directo gr. 4. ♌ angulus communis eſt gr. 16. m. 24. collateralis eſt gr. 15. m. 26. Differentia eſt min. 58. minuen. cum collateralis ſit minor; pars proportionalis pro min. 30. eſt min. 29. quæ ablata à gr. 16. m. 24. conſtituent veram Declinationem gr. 15. 54.

	G.	M.
Declinatio grad. 4 ♌ cum grad. 3. latitud. merid.	16	24
Declinatio grad. 4. ♌ cum grad. 4. latitud. merid.	15	26
Differentia eſt	0	58
Pars proportionalis pro min. 30. ſubtrahenda	0	29
Quæſita declinatio gr. 4. ♌ cum lat. mer. gr. 3. m. 30.	15	55

Aliud exemplum complectens omnes operationes circa hæc. Videamus declinationem ♃ qui eſt in gr. 27. m. 48 ♒ cum latit. merid. gr. 1. m. 38. Primò corrigenda eſt declinatio cum gradibus, & minutis longitudinis, vt ſupra diximus hoc modo, angulus communis gr. 27. ♒ ſub gr. 1. latit. merid. eſt gr. 13. m. 29. Sequens verò grad. ſcilicet 28. ♒ eſt gr. 13. m. 9. differentia eſt minutorum 20. ſubtr. cum ſequens ſit minor angulo communi; de quibus conueniunt proportionaliter

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minutis 48. minuta 16. quibus ſublatis ab angulo communi prodibit Declinatio correcta ratione longitudinis grad. 13. m. 13. quam ſeorſum ſerua. Æquanda deinde eſt ratione latitudinis tali pacto; angulum ſi conferamus ad collateralem conſpiciemus differentiam eſſe m. 56. adden. cum collateralis ſit maior: nam angulus communis eſt gr. 13. m. 29. collateralis eſt gr. 14. m. 25. de his m. 56. differentiæ conuenient minutis 38. latitudinis vltra integrum gradum minuta 35. pa[illegible]faciendo ſecunda: hæc minuta ſi addantur prius inuentæ declinationi, & correctæ ratione longitudinis, quam ſeorſum ſeruaſti, efficient veram, & omnibus numeris abſolutam ☿ declinationem hoc modo.

	G.	M.
Declinatio prius reperta cum longitud.	13	13
Minuta pro minutis 38. latitudin.	0	35
Vera declinatio Mercurij	13	48

Scala nigra, quam in declinationum Tabula conſpicies, nil aliud eſt niſi terminus, & limes Declinationis Meridianæ, & Septentrionalis: loca etenim ſupra ſcalā nigram habent, declinationem Septentrionalem; ſub ſcala verò meridianam, contingit ergo aliquando licet rarò hanc ſcalam intercipienter angulum cōmunem, & arealem ſequentem, vel collateralem ita, vt ſæpe declinatio variet denominationem: idcirco ad veram declinationem venandam in hoc caſu ſic procedendum. Si ſcala conſiſtit inter angulum communem, & ſequentem arealem, adde ſimul vtroſquê numeros, & de aggregato ſume partem proportionalem pro ſcrupulis vltra integros gradus; hæc pars proportionalis ſubtrahenda eſt ab angulo communi ſi dictus angulus fuerit maior, & conſurget quęſita declinatio eiuſdem denominationis cum angulo communi. Si angulus fuerit minor, ipſe ſubtrahendus eſt a parte proportionali, & prodibit declinatio, ſed alterius denominationis, quam anguli cōmunis. Verbi gratia, indagetur declinatio gr. 2. m. 20. ♒ cum latit. Septētr. gr. 1. Angulus communis gr. 22. eſt gr. 0. m. 7. gradus ſequentes 3. eſt gr. 0. 17. ſimul additi conſtituent min. 24. de quibus inter angulum communem, qui eſt gr. 0. m. 24. de quibus proportionaliter pro minutis 20. conuenient minuta 8. à quibus ſubtrahendus eſt angulus communis cum ſit minor parte proportionali, & relinquetur declinatio grad. 0. m. 1. merid. contrariæ denominationis anguli communis; quia cadit ſub ſcala nigra.

Si ſcala conſiſtit inter angulum communem, & collateralem, primò corrigatur declinatio more ſolito, vt ſupra, ratione longitudinis: poſtea adde angulum communem ad collateralem, & ex aggregato ſume partem proportionalem pro minutis latitudinis: hæc pars proportionalis quando eſt maior angulo communi accipit contrariam denominationem ſigno loci, cuius quæris declinationem, & ſi eſt minor retinet eamdem; Videndum eſt deinde an declinatio correcta ratione longitudinis, & hæc pars proportionalis nomine congruant; ſi ſunt eiuſdem denominationis ſubtrahe partem proportionalem ſi fieri poteſt ex declinatione, & habebis declinationem correctam, quæ ab ipſo loco retinebit denominationem: vel declinatio erit ſubtrahenda à parte proportionali, & declinatio erit contrariæ denominationis loco cuius quæritur declinatio. Exempli gratia, declinatio gr. 23. ♍ cum latit. merid. gr. 3. eſt gr. 0. m. 2. meridiana prout conſpici poteſt ex præcedentibus;

tibus; ponamus quod latitudo ſit gr. 3. m. 24. nunc ſcala conſiſtit inter angulum communem,& collateralem: iungendi ergo ſunt ſimul communis,qui eſt gr.o.m. 2. collateralis qui eſt gr.o.m.53 & fiet numerus gr.o. m.55. de quibus pro minutis 24. latitudinis conueniunt minuta 22.quæ pars cum ſit maior angulo communi erit Meridianæ denominationis contrariæ Angulo, ab hac parte proportionali demum ſubtrahenda eſt declinatio ſupranotata, ſcilicet gr.o m.2.cum ſit minor,& conſurget exacta declinatio gr. o. m. 20. meridiana contraria loco propoſito in ♍ ſigno Septentrionali.

	G.	M.
Declinatio gr. 23. m. 20. ♍. cum gr. 3. latit. merid.	o	2
Angulus communis, & collateralis ſimul iuncti conſtituent numerum	o	55
Pars proportionalis pro minutis 24. latitud.	o	22
Ab hanc ſubtracta declinatio (cum ſit minor)	o	2
Conſtituet veram declinationem merid.	o	20

Tot exempla ſufficiant. Pars proportionalis habetur ex Tabula ſexagenaria, vel ex regula trium.

Vt appareat quomodò ex triangulorum ratione ſint ſupputatæ declinationes tàm cum latitudine, quàm ſine, libuit hic inſerere ſupputationes.

A puncto Æquinoctij ad punctum Solſtitij intercedit quadrans Circuli & gradus 90. quæ diſtantia noſtro æuo tribuit eclipticæ Declinationem ab Æquinoctiali æqualem obliquitati ipſius gr. 23. min. 32. Videndum eſt per triangula quam declinationem afferat quælibet alia diſtantia punctorum eclipticæ ab Æquinoctiali. In ſumenda declinatione ſine latitudine hoc pacto indagatur conſtituto triangulo.

Sicut radius gr.90.& ſinus totus ad ſinum maximę declinationis,ita ſinus cuiuſlibet diſtantiæ ab Æquinoctio ad ſinum quæſitæ declinationis. Multiplicatur per auream regulam Terminus tertius per ſecundum,& productum diuiditur per primum. Hic verò poſito Radio pro primo termino, & diuiſore producti ex multiplicatione abſcindendæ ſunt primæ quinque figuræ dextrorſum,& reliquæ ad læuam quæſitæ in Tabula, & Columna ſinuum dabunt quæſitam Declinationem. Exemplum.

Quæratur declinatio grad. 15. ſigni Leonis: hic locus diſtat ab Æquinoctio, & principio Libræ gr. 45. cuius ſinus eſt 70711. Maxima declinatio ſupponitur gr. 23.32. cuius ſinus eſt 39928. tunc.

Sicut radius 100000.ad 39928.ita 70711.ad 28233. nam multiplicatus 39928. per 70711. conſtituit 28233. 48808. à quibus detractis primis quinque figuris remanet 28233. quibus in tabella ſinuum reſpondent gr. 16. m. 24. quæſitæ declinationis.

Pro Declinatione loci cum Latitudine.

Maximæ declinationi additur latitudo, & aggregati ſinus eſt inuentum primum.

A Maxima declinatione ſubtrahitur latitudo; & reſidui ſinus eſt inuentum ſecundum.

Sinus

Sinus inuenti primi, & ſecundi coniunguntur, & dimidium aggregati eſt inuentum tertium.

Sumitur ſinus diſtantiæ loci ab Æquinoctio, cui additur radius, ſeu ſinus totus, & fit inuentum quartum.

Tunc ſicut radius ad inuentum tertium, ita inuentum quartum ad inuentum quintum.

Si latitudo, & locus Zodiaci cuius quæritur declinatio fuerit eiuſdem denominationis idest ambo Meridionales, vel Septemtrionales, inuentum ſecundum ſubtrahitur à quinto, & reſidui ſinus dabit declinationem quæſitam. Si latitudo, & locus Zodiaci fuerint diuerſæ denominationis, vnus Septemtrionalis, alter Meridionalis primum inuentum ſubtrahitur à quinto, & reſidui ſinus afferet declinationem. Si verò quintum fuerit minus primo, tunc ſubtrahitur quintum à primo.

Ab vltimo ſi auferatur primum conſurget declinatio in parte Latitudinis Meridianæ. Si auferatur ſecundum aderit declinatio in parte Boreali. Exemplum.

Quæratur declinatio gr. 12. Tauri cum latitud. gr. 4. Septentr.

Declinationi maximæ gr.	23	32	
addita latitudo	4	0	
	gr. 27	32	ſinus 46226. Inuentum primum.
Declinatione maxima	23	32	
ſubtracta latit.	4	0	
	19	32	ſinus 33436. Inuentum ſecundum
Inuentum primum	46226		
Inuentum 2.	33436		
ſimul	79662.		Dimidium 39831. Inuẽtum tertiũ.

Gradus 12. Tauri diſtat ab Æquinoctio Arietis gr. 42. cuius ſinus 66913. addito radio fit 166913. Inuentum quartum. Tunc

Sicut rad. 100000. ad inuentum tertium 39831. ita inuẽtum quartum 166913. ad quintum 66482.

A quinto ſi auferatur ſecundum 33436. remanet 33046. pro declinatione loci in parte Septentrionali, cui reſpondent in tabella ſinuum gr. 19. 17.

Si à quinto 66482. auferatur primum 46226. remanet 20256. quibus reſpondent in Tabula gr. 11. 40. in parte Meridionali.

Hoc pacto conſtructa eſt Declinationum Tabella.

Quia verò nimis longa, & intricata eſt hæc operatio colligendi declinationem cum latitudine; breuiorem eapropter, ac faciliorem viam libuit apponere cum ſequenti tabella; cuius vſus hic eſt.

Cum ſigno, & gradu cuius quæritur declinatio ſumendus eſt arcus numerando à parte deſcendente ſi ſignum fuerit in parte ſuperiori, & à parte Aſcendente ſi in inferiori. Secundò cum dicto arcu ſumendus eſt numerus multiplicandus è directo, vtendo parte proportionali tàm in arcu, quàm in numero multiplicando, ſi locus cuius quæritur declinatio obtinuerit minuta vltra integros gradus. Tertiò

arcui

tibus; ponamus quod latitudo ſit gr. 3. m. 24. nunc ſcala conſiſtit inter angulum communem,& collateralem: iungendi ergo ſunt ſimul communis,qui eſt gr.o.m. 2. collateralis qui eſt gr.o.m.53 & fiet numerus gr.o. m.55. de quibus pro minutis 24. latitudinis conueniunt minuta 22.quæ pars cum ſit maior angulo communi erit Meridianæ denominationis contrariæ Angulo, ab hac parte proportionali demum ſubtrahenda eſt declinatio ſupranotata, ſcilicet gr.o m.2.cum ſit minor,& conſurget exacta declinatio gr. o. m. 20. meridiana contraria loco propoſito in ♍ ſigno Septentrionali.

	G.	M.
Declinatio gr. 23. m. 20. ♍. cum gr. 3. latit. merid.	o	2
Angulus communis, & collateralis ſimul iuncti conſtituent numerum	o	55
Pars proportionalis pro minutis 24. latitud.	o	22
Ab hanc ſubtracta declinatio (cum ſit minor)	o	2
Conſtituet veram declinationem merid.	o	20

Tot exempla ſufficiant. Pars proportionalis habetur ex Tabula ſexagenaria, vel ex regula trium.

Vt appareat quomodò ex triangulorum ratione ſint ſupputatæ declinationes tàm cum latitudine, quàm ſine, libuit hic inſerere ſupputationes.

A puncto Æquinoctij ad punctum Solſtitij intercedit quadrans Circuli & gradus 90. quæ diſtantia noſtro æuo tribuit eclipticæ Declinationem ab Æquinoctiali æqualem obliquitati ipſius gr. 23. min. 32. Videndum eſt per triangula quam declinationem afferat quælibet alia diſtantia punctorum eclipticæ ab Æquinoctiali. In ſumenda declinatione ſine latitudine hoc pacto indagatur conſtituto triangulo.

Sicut radius gr.90.& ſinus totus ad ſinum maximę declinationis, ita ſinus cuiuslibet diſtantiæ ab Æquinoctio ad ſinum quæſitæ declinationis. Multiplicatur per auream regulam Terminus tertius per ſecundum,& productum diuiditur per primum. Hic verò poſito Radio pro primo termino, & diuiſore producti ex multiplicatione abſcindendæ ſunt primæ quinque figuræ dextrorſum,& reliquæ ad læuam quæſitæ in Tabula, & Columna ſinuum dabunt quæſitam Declinationem.

Exemplum.

Quæratur declinatio grad. 15. ſigni Leonis: hic locus diſtat ab Æquinoctio, & principio Libræ gr. 45. cuius ſinus eſt 70711. Maxima declinatio ſupponitur gr. 23.32. cuius ſinus eſt 39928. tunc,

Sicut radius 100000.ad 39928.ita 70711.ad 28233. nam multiplicatus 39928. per 70711. conſtituit 28233. 48808. à quibus detractis primis quinque figuris remanet 28233. quibus in tabella ſinuum reſpondent gr. 16. m.24. quæſitæ declinationis.

Pro Declinatione loci cum Latitudine.

Maximæ declinationi additur latitudo, & aggregati ſinus eſt inuentum primum.

A Maxima declinatione ſubtrahitur latitudo; & reſidui ſinus eſt inuentum ſecundum.

Sinus

Sinus inuẽti primi, & ſecundi coniunguntur, & dimidium aggregati eſt inuentum tertium.

Sumitur ſinus diſtantiæ loci ab Æquinoctio, cui additur radius, ſeu ſinus totus, & fit inuentum quartum.

Tunc ſicut radius ad inuentum tertium, ita inuentum quartum ad inuentum quintum.

Si latitudo, & locus Zodiaci cuius quæritur declinatio fuerit eiuſdem denominationis idèſt ambo Meridionales, vel Septentrionales, inuentum ſecundum ſubtrahitur à quinto, & reſidui ſinus dabit declinationem quæſitam. Si latitudo, & locus Zodiaci fuerint diuerſæ denominationis, vnus Septentrionalis, alter Meridionalis primum inuentum ſubtrahitur à quinto, & reſidui ſinus afferet declinationem. Si verò quintum fuerit minùs primo, tunc ſubtrahitur quintum à primo.

Ab vltimo ſi auferatur primum conſurget declinatio in parte Latitudinis Meridianæ. Si auferatur ſecundum aderit declinatio in parte Boreali. Exemplum.

Quæratur declinatio gr. 12. Tauri cum latitud. gr. 4. Septentr.

Declinationi maximæ gr.	23	32	
addita latitudo	4	0	
	gr. 27	32	ſinus 46226. Inuentum primum
Declinatione maxima	23	32	
ſubtracta latit.	4	0	
	19	32	ſinus 33436. Inuentum ſecundum
Inuentum primum	46226		
Inuentum 2.	33436		
ſimul	79662.		Dimidium 39831. Inuẽtum tertiũ.

Gradus 1.2. Tauri diſtat ab Æquinoctio Arietis gr. 42. cuius ſinus 66913. addito radio fit 166913. Inuentum quartum. Tunc

Sicut rad. 100000. ad inuentum tertium 39831. ita inuẽtum quartum 166913. ad quintum 66482.

A quinto ſi auferatur ſecundum 33436. remanet 33046. pro declinatione loci in parte Septentrionali, cui reſpondent in tabella ſinuum gr. 19. 17.

Si à quinto 66482. auferatur primum 46226. remanet 20256. quibus reſpondent in Tabula gr. 11. 40. in parte Meridionali.

Hoc pacto constructa eſt Declinationum Tabella.

Quia verò nimis longa, & intricata eſt hæc operatio colligendi declinationem cum latitudine; breuiorem eapropter, ac faciliorem viam libuit apponere cum ſequenti tabella, cuius vſus hic eſt.

Cum ſigno, & gradu cuius quæritur declinatio ſumendus eſt arcus numerando à parte deſcendente ſi ſignum fuerit in parte ſuperiori, & à parte Aſcendente ſi inferiori. Secundò cum dicto arcu ſumendus eſt numerus multiplicandus è directo, vtendo parte proportionali tàm in arcu, quàm in numero multiplicando, ſi locus cuius quæritur declinatio obtinuerit minuta vltra integros gradus. Tertiò

arcui

Arcui ſumpto adde latitudinem ſi arcus, & latitudo fuerint ambo Meridionales, vel ambo Septentrionales; vel deme vnum ab altero ſi fuerint diuerſæ denominationis. Cuius aggregati, vel reſidui ſumendus eſt ſinus rectus ducendus in numerum multiplicandum iam ſumptum; Facta multiplicatione, & detractis primis figuris quinque: quod remanet dabit in tabella ſinuum quæſitam declinationem. Exemplum.

Quæratur declinatio Stellæ Antares ſeù Cordis Scorpij cuius longitudo eſt gr. 4. 48. ♐ ſigni cum latitud. Merid. gr. 4. 27.

Cum gr 2.48. ♐ ſumitur arcus gr. 21. 29. in tabella, & numerus multiplicandus 98546. adhibita parte proportionali vt decet. Arcui 21. 29. addita latitudine (cum latitudo, & ſignum ſint in parte Meridionali) conſurgent gr. 25. 56. cuius ſinus eſt 43733. qui ductus in numerum multiplicandum 98546. tribuet 4308717218. ablatis quinque figuris dextris remanent 43087. quæ in tabella ſinum exhibent Antaris declinationem gr. 25. 31. 22.

Aliud exemplum.

Quæratur declinatio Pallilitij, ſeu Oculi ♉ qui eſt in gr. 4. 48. ♊ cùm latitudine Meridion. gr. 5. 31. Arcus eſt idem, qui in Antares, ſicut numerus multiplicandus. Latitudo ſubtrahitur ab arcu, cum ſignum ſit Boreale, & latitudo Meridionalis.

Ab arcu 21. 29. ſubtracta latitud. gr. 5. 31. remanet 15. 58. cuius ſinus eſt 27508. qui multiplicatus per dictum num. multiplicandũ 98546. conſtituit 2710803368. Ablatis quinque figuris remanent 27108. quibus in tabella reſpondent gr. 15. 44. declinationis Pallilitij.

Si locus non habuerit Latitudinem, ſumitur cum eo arcus, & numerus multiplicandus: ſicut ſinus arcus; qui ducitur in dictum numerum multiplicandum; & abiectis vt ſupra quinque primis figuris remanens erit ſinus quæſitæ declinationis. Exemplum.

Quæratur declinatio gr. 13. ♎. Arcus eſt gr. 5. 35. cuius ſinus eſt 9729. numerus multiplicandus 92138. ſimul ducti conſtituent abiectis quinque figuris 8964. quibus reſpondent declinationis gr. 5. min. 9.

	Arcus ♈ ♎		Num. multiplic.	Arcus ♉ ♏		Numerus.	Arcus ♊ ♐		Numerus.	
G	G	M		G	M		G	M		
0	0	0	91707	12	16	93848	20	38	97551	30
1	0	26	917010	12	37	93927	20	50	98112	29
2	0	52	917018	12	58	94108	21	0	98232	28
3	1	18	91730	13	19	94242	21	11	98347	27
4	1	44	91747	13	40	94378	21	21	98460	26
5	2	10	91770	14	0	94516	21	31	98570	25
6	2	36	91758	14	20	94655	21	40	98676	24
7	3	2	91831	14	40	94795	21	49	98778	23
8	3	28	91869	14	59	94936	21	58	98878	22
9	3	53	91912	15	18	95077	22	6	98973	21
10	4	19	91960	15	37	95219	22	14	99066	20
11	4	45	92014	16	55	95462	22	21	99153	19
12	5	10	92073	16	13	95505	22	28	99237	18
13	5	35	92138	16	31	95649	22	35	99317	17
14	6	0	92209	16	48	95754	22	41	99393	16
15	6	25	92283	17	5	95840	22	47	99465	15
16	6	50	92361	17	22	96985	22	52	99532	14
17	7	15	92443	17	38	96030	22	57	99595	13
18	7	39	92528	17	54	96337	23	2	99654	12
19	8	3	92617	18	10	96517	23	7	99708	11
20	8	27	92710	18	25	96659	23	11	99758	10
21	8	51	92808	18	40	96800	23	15	99803	9
22	9	15	92910	18	55	96940	23	18	99844	8
23	9	39	93017	19	9	97080	23	21	99881	7
24	10	2	93127	19	13	97717	23	24	99913	6
25	10	25	93239	19	36	97351	23	26	99940	5
26	10	48	93355	19	49	97452	23	28	99962	4
27	11	10	93474	20	2	97612	23	30	99976	3
28	11	32	93596	20	14	97741	23	31	99990	2
29	11	54	93721	20	26	97867	23	31	99998	1
30	12	16	93848	20	38	97991	23	32	100000	0
	♓	♍		♒	♌		♑	♋		

PRO INVENIENDA ASCENSIONE RECTA cuiuslibet loci, tàm cum latitudine, quàm ſine. Cap. VI.

INtra in Tabulam Aſcenſionum rectarum cum Planetæ loco, ſeu alterius, cuius Aſcenſionem rectam quæris, cum latitudine ſi quam habuerit, & in angulo communi illicò reperies intentum: Verbi gratia quæratur recta aſcenſio gr. 20. ♋ cum latitudine Auſtrali gr. 4. m. 0. In ſigno ♋ è directo gradus 20. ſub columna gr. 4. latitudinis meridianæ reperies gr. 121. m. 2. computandos à primo puncto Arietis, & hæc erit vera huius loci recta Aſcenſio. Si verò vltra integros gradus longitudinis, & latitudinis adfuerint etiam minuta, tunc procedendum eſt ſicut in capienda declinatione conferendo angulum communem cum areali immediatè ſequenti pro minutis longitudinis, & pro minutis latitudinis cum collaterali, & ſumendo partem proportionalem addendam (ſemper corrigendo longitudinem) angulo communi, minuendam verò, vel addendam quando æquamus latitudinē, prout numerus collateralis creſcit, vel decreſcit; exemplorum multitudine omnia fient lucida. In genitura Excellentiſſimi Marci Antonij Columnæ Venus eſt in gr. 13. m. 31. ♓ cum latitudine gr. 1. merid. & optetur eius recta aſcenſio: primò igitur è directo gr. 13. ♓ ſub numero latitud. Merid. gr. 1. inuenientur gr. 344. m. 44. rectæ aſcenſionis: quia verò vltra gr. 13. ♓ integros adſunt etiam m. 31. idcircò ratione horum minutorum corrigenda eſt recta aſcenſio hoc modò. Facta collatione inter angulum communem, ſcilicet gr. 344. min. 44. & ſequentem cuius recta aſcenſio eſt gr. 345. m. 40. differentia eſt gr. 0. m. 56. de quibus ſi ſumimus partem proportionalem pro minutis 31. vltra integros gradus longitudinis competent m. 29. ſemper addenda angulo communi, & ſic conſtituetur recta aſcenſio ♀ gr. 345. m. 13. hoc modo.

	G.	M.
Recta aſcenſio gr. 13. ♓ ſub gr. 5. lat. mer.	344	44
Recta aſcenſio gr. 14. ♓ immediatè ſequens	345	40
Differentia eſt	0	59
	344	44
Pars proportionalis pro minutis 31. addend. gr.	0	29
Aſcenſio recta Veneris erit grad.	345	13

Saturnus eſt in grad. 2. m. 48. ♌ cum latitud. merid. grad. 0. m. 3. Aſcenſio recta gr. 2. ♌ cum latit. Merid. gr. 0. eſt gr. 124. m. 16. Aſcenſio numeri ſequentis eſt gr. 12. m. 18. Differentia eſt gr. 1. m. 2. de quibus proportionaliter conuenient minutis 48. longitudinis minuta 50. abiectis ſecundis, hæc min. 50. addenda ſunt priori inuentæ

	G.	M.	
Aſcenſioni, videlicet	124	16	& ſic
Ratione longitudinis correcta	0	50	
Aſcenſio recta erit	125	6	

verum

verum ♄ habet grad.m.3. latitudinis merid.ea propter conferendus eſt angulus communis dictus gr.124.m.16.cum collaterali,qui eſt gr.124.2.& eliciemus partem proportionalem eſſe m.14.ſubtrah. cum collateralis ſit minor angulo communi; ſumendo de his m.14. partem proportionalem pro m.3.latitudinis reperiemus competere ſecunda 42. quæ deſeruiunt pro m. 1. Hoc m. 1. ſubtrahendum eſt ab inuenta, & correcta aſcenſione recta; & ſic vera tam ratione longitudinis, quam latitudinis Aſcenſio recta Saturni prodibit gr.125.m.5.

	G.	M.
Aſcenſio recta gr. 2. ♌ cum latit. mer. gr. 0.	124	16
Aſcenſio recta gr. 2. ♌ cum lat. mer. gr. 1.	124	2
Differentia	0	14
Pars proportionalis pro m. 3. latitud. ſub.	0	1

	G.	M.
Aſcenſio recta prius correcta.	125	6
Pars proport. ſubtrahenda	0	1
Vera recta aſcenſio ♄	125	5

Alterum exemplum. Mercurius eſt in gr. 17.m.48.♒ cum gr.1.m.38.latit.merid. Aſcenſio recta gr.27 ♒ ſub gr.1.latit.merid.eſt gr.329.m.35.gradus verò 28. ♒ ſequentis eſt gr. 330.m.33.differentia eſt m.58.de quibus pro minutis 48.vltra integros gr.27. ♒ competent min.46.ſec. (tenenda) 24.hęc m.46. ſi addamus angulo communi gr.329. m.35. recta aſcenſio correcta ratione longitudinis erit gr. 330. m.21. quæ ſeorſum ſeruanda eſt. Facta collatione inter gr. 1. latitud. merid. ibidem cuius aſcenſionem rectam conſpeximus gr.329.m.35.cum gr.2. latit. merid. collaterali, cuius aſcenſio eſt gr.329.m.56.differentia erit min.21.adden.cum numerus collateralis ſit maior angulo communi: pro m.38.latitudinis vltra integrum gradum competent de hac differentia minutorum 21.minuta 13.reiectis ſecundis. Hæc min. 13. ſi addantur inuentæ aſcenſioni rectæ, & ſeorſum ſeruatæ ſcilicet gr. 330. m.21. producent aſcenſionem rectam ☿ omnibus numeris abſolutam gr.330.m.34.vt vides.

	G.	M.
Aſcenſio recta ſeruata	330	21
Pars proportionalis	0	13
Vera Aſcenſio recta ☿	330	34

AD ELICIENDAM ASCENSIONEM, & Deſcenſionem obliquam tam cum latitudine, quam ſine ad omnes Poli Borealis Eleuationes. Cap. VII.

SVb quacumque Poli Altitudine eodem modò eruitur aſcenſio obliqua, quo aſcenſio recta cum eodem ordine vtrarumque tabulæ conſtructæ ſint quod exemplis aliquot elucceſcet. In genitura Excellentiſsimi Principis Columnæ ſub altitudine Poli gr. 41. m. 50. inquiratur aſcenſio obliqua Horoſcopi gradus ſcilicet 10. m. 37. ♋ Primò ingredere Tabulam aſcenſionum obliquarum ſub altitu-

dine Pol.gr.41.m.50; & reperto in ea ſigno ♎ è directo gr.10. occurrent tibi gr. 192.m.45. in colum. o. Latitudinis; & quia vltra integros gradus 10. adſunt min. 37. Corrigenda idcirco eſt obliqua aſcenſio non ſecus atque in recta aſcenſione peregimus hoc modo; facta collatione inter angulum communem gr.10 ♎ cuius obliqua aſcenſio eſt gr.192.m.154. & immediate ſequentem gr.11. ♎ cuius aſcẽſio eſt gr.194. m.1. elicitur differentia gr.1. m.16; de quibus proportionaliter pro m.37. competunt m.47. quæ addita priori aſcenſioni repertæ gr.192,45. efficient veram obliquam aſcenſionem.

	G.	M.
Aſcendentis gr. 193. 32. m.		
Aſcenſio obliq. pro gr. 10. ♎ eſt	192	45
Pars propor. pro m. 37. addenda	0	47
Aſcenſio obliqua Aſcendentis.	193	32

Sub eadem Poli altitudine exploretur obliqua aſcenſio gr.27.m.48. ♎ cum latit.Boreal gr.o.m.40.in quo loco cadunt radij △ ☿. Aſcenſio obliqua è directo gr. 27.eſt gr.214.m.31.in colum.lat.Sept.o.aſcenſio ſequentis gr.28.eſt 215. min.49. differentia eſt gr.1.m.18.de quibus proportionaliter pro min.48.vltra gr.27.conueniunt gr.1.m.2. quæ addita aſcenſioni gr.214.m.31. corrigent aſcenſionem obliquam ratione longitudinis gr.215.m.33. quam ſerua. Æquanda eſt deinceps ratione latitudinis hoc pacto. Si cõferas angulum communem dictum cum collaterali qui eſt gr.115.m.3.videbis differentiam m.32. add. cum *collateralis ſit maior* angulo communi reperto ſub columna nullius latitudinis è directo grad. 27. ♎. de his m.32. pro min.49. latitudinis Septent. competunt min.26. quæ ſi addamus aſcenſioni obliquæ correctæ ratione longitudinis habebimus obliquam aſcenſionem gr.27. ♎ cum latit.Septentr.gr.o.m.49. abſolutam graduum 215.m.59.

Aliud exemplum. Sub altitud.Pol.gr.37.ſub gr.1. m.o. latitudinis Merid. è directo gr.13. ♓ loci ♀ in genitura Excellentiſsimi Principis, aſcenſio obliqua eſt gr.350. m.31. Facta collatione cum immediatè ſequenti pro venanda differentia, & elicienda parte proportionali (cum ♀ ſit in gr.13.m 31. ♓) cum gradus 14. ♓ aſcenſio obliqua ſit gr.351. m.9. inueniemus differentiam eſſe m.38; Pro min.31. competunt.m.20.quæ addita gr.350.m.31.conſtituent veram ♀ obliquam aſcenſionem gr.350.m.51.

Aliud exemplum ſit ſub altitudine Pol. gr. 44. Exploretur aſcenſio obliqua gr. 22.m.47 ♋. cum latitud.Septentr.gr.4.m.20. E directo gr.22.♋ ſub columna.latit.Sept.gr.4. aſcenſio obliqua eſt gr.86.m.52; aſcenſio immediatè ſequens eſt gr. 88.m.11. Differentia eſt gr.1. m.19; proportionaliter pro m.47. vltra gradus integros 22.longitudinis competent gr.1.m.2. qui numerus additus aſcenſioni gr.86. m.52. efficiet aſcenſionem correctam ratione longitudinis gr.87. m.54; Facta deinde collatione repertæ aſcenſionis ſub col.gr.4.latitud.Septentr.gr.86.m.52.cum collaterali cuius aſcenſio eſt gr.85.m.42. differentia eſt gr.1. m.10. demenda quia collateralis eſt minor; pro minutis 20.latitudinis vltra gr.4.competent.m.23.quæ ablata à correcta aſcenſione ratione longitudinis gr.87. m.54. conſtituent veram aſcenſionem obliquam gr.87.m.31.

G.M.

	G.	M.
Aſcenſio obliqua ſub 4. gr. latit. Bor. cum gr. 22. ♋	86	52
Aſcenſio obliqua cum gr. 23. ♋ ſequenti	88	11
Differentia	1	19
Pars proportionalis pro minut. 37. addenda eſt.	1	2
Aſcenſio obliqua correcta ratione longitudinis eſt.	87	54
Pars proportionalis pro m. 20. latitud. ſubtrah.	0	23
Vera obliqua aſcenſio loci propoſiti erit.	87	31

Deſcenſio obliqua eſt æqualis aſcenſioni loci oppoſiti, cuius vſus in noſtris Tabulis erit ad libitum, cum diſcamus dirigere in parte cœli aſcendente, etiam ſtellas exiſtentes in deſcendente, vt diximus. Pro colligenda ergo obliqua deſcenſione ſumenda eſt aſcenſio obliqua loci oppoſiti cum latitudine contrariæ denominationis, ſi quam habuerit; Vt de Aſcenſionibus dictum eſt. Repertæ deinde aſcenſioni obliquæ loci oppoſiti, addenda eſt medietas circuli, ideſt grad. 180. ſi locus cuius quæris deſcenſionem eſt in poſteriori medietate circuli, ſcilicet à primo ♎ vſq; ad finem ♓; & minuenda ſi fuerit in priori à primo ♈ vſque ad finem ♍; & quod conſtabit erit deſcenſio obliqua; exẽplis res fiet lucida. Sub eleuatione Pol. gr. 44. exploretur obliqua deſcenſio abſq; Latitudine gr. 20. ♉ Locus oppoſitus eſt gr. 20. ♏ cuius aſcenſio obliqua eſt gr. 245. m. 36. è quibus ſublatis gr. 180. (cum inquiratur deſcenſio in priori ſemicirculo) remanet deſcenſio obliqua gr. 65. m. 36.

Alterum exemplum. In eleuatione Poli gr. 37. exploretur deſcenſio obliqua ♀ in genitura Excellentiſſimi Principis in gr. 13. m. 31. ♓ cum latitudine gr. 1. m. 0. Meridian. locus huic oppoſitus eſt gr. 13. m. 31. ♍ cum latit. gr. 1. m. 0. Septentr. Aſcẽſio obliqua gr. 13 ♍ in Altitudine Pol. 37. cum latit. Bor. gr. 1. m. 0. eſt gr. 158. m. 57. immediate ſequentis eſt gr. 160 m. 11. differentia inter vtroſque eſt gr. 1. m. 14 pars proportionalis pro m. 31. eſt m. 38; quæ addita inuentæ aſcenſioni gr. 158. m. 57. conſtituent veram aſcenſionem obliquam gr. 159. m. 35; His ſi addantur gr. 180. cum quæritur deſcenſio in poſteriori ſemicirculo, conſtituent veram ♀ deſcenſionem obliquam gr. 339. m. 35. Res non eget alia explicatione.

ASCENSIONE RECTA COGNITA, QVOMODO *indagetur quis gradus Zodiaci illi reſpondeat.* Cap. IIX.

IN tabula aſcenſionum rectarum quære propoſitam rectam aſcenſionem, & è directo in ſiniſtro latere reperies gradus ſigni, illi correſpondentes; exempli gra. ſi exploretur, quis eclipticæ arcus debeatur aſcenſionibus rectis gr. 125. m. 18. in præfata Tabula illicò reperietur illis conuenire gr. 3. ſigni ♌. Verum ſi rectam aſcenſionem propoſitam preciſe non inueneris in area, ſeu angulo communi, facienda eſt tunc temporis collatio inter repertam, & immediate ſequentem, & harum differentia erit portio, quæ debetur vni gradui Zodiaci; poſteà aſcenſionem rectam primo reperteam, & minorem ſubtrahe ab aſcenſione propoſita, & vtere regula, Trium ducendo hoc vltimò ſubtractum in 60; & diuidendo productum per

differentiam, ſeu portionem debitam vni gradui eclipticæ; & quod conſurget addendum eſt gradibus Zodiaci primò inuentis: exemplo melius rem intelliges. Sit recta aſcenſio gr. 103. m. 32. videamus quis gradus ſigni Zodiaci illi conueniat. In tabula aſcenſionum rectarum è directo gr. 12. ♋ reperitur aſcenſio gr. 103. min. 3. nec exquiſite, gr. 103. min. 32. facta idcirco collatione inter hunc gr. 103. min. 3. & ſequentem gr. 104. min. 8. differentia eſt gr. 1. min. 5. & ſimul min. 65. portio videlicet debita vni gradui eclipticæ, & hic eſt primus numerus pro regula triũ; Subtracta deinde aſcenſione gr. 103. m. 3. ab aſcenſione propoſita gr. 103. m. 33; remanent m. 29. & hic eſt ſecundus numerus pro regula, tertius autem ſemper eſt, 60; nunc ducamus ſecundum in tertium ideſt 29. in 60. & producetur 1740; qui numerus ſi diuidatur per primum 65; elicientur m. 27. abiectis aliquibus ſecundis, quæ addenda ſunt grad. 12. ♋; & ſic grad. 12. m. 27. ♋ erit conreſpondens rectis aſcenſionibus gr. 103. m. 32. poſitis in M. C. in genitura Excellentiſſimi Principis Columnæ.

DATA ASCENSIONE, VEL DESCENSIONE *obliqua ſub quacunque Poli Altitud. quomodo indagetur, quis Eclipticæ gradus illi conueniat.* Cap. IX.

INgredere Tabulam aſcenſionum obliquarum, ſub eleuatione Poli loci propoſiti, & cum gradibus obliquæ aſcenſionis è directo ſiniſtrorſum inuenies gradus ſigni, illi conreſpondentes, non ſecus ac diximus cap. præcedenti: Sed ſi præcisè numerus non reperiatur tunc accipe angulum communem minoris aſcenſionis, & conferre cum maiori immediate ſequenti, vt elicias portionem debitam vni gradui eclipticæ, quæ eſt primus numerus pro regula; poſtea angulum communem, & minoris aſcenſionis ſubtrahe ab aſcenſione obliqua propoſita, vt prodeat differentia, & ſecundus numerus ducendus in 60; productum vltimò, diuidatur per primum, & quod conflabitur addendum gradibus Zodiaci repertis cum aſcẽſionibus minoribus. Exemplum. Sub Pol. altit. gr. 41. m. 50. Romæ indagetur quis gradus eclipticæ debeatur obliquis aſcenſionibus gr. 192. m. 32. poſitis in Horoſcopo Excellentiſs. Principis.

In tabula obliquarum aſcenſionum ſub dicta Pol. altitud. è directo gr. ♎ reperitur aſcenſio obliq. gr. 292. m. 45. vſque ad gr. 193. m. 32. deſunt. m. 47. Nunc facta collatione inter gr. 12. ♎ cuius obliqua aſcenſio eſt gr. 192. m. 45. & gr. 13. ♎ cuius aſcenſio eſt gr. 194. m. 1. elicitur differentia pro vno grad. Eclipticæ gr. 1. m. 16. & ſimul min. 76. & eſt primus numerus, ſecundus eſt m. 47. quæ deſunt, tertius eſt 60. ducto ſecundo in tertium conflabitur 1820. quo diuiſo per primum, ideſt m. 76. prodibunt m. 37. quæ addita gradibus repertis cum minori aſcenſione, ideſt gr. 10. ♎ conſtituent gr. 10. min. 37. ♎ conreſpondentes obliquis aſcenſionibus gr. 193. min. 32.

Si exploretur quis gradus Eclipticæ conueniat datæ obliquæ deſcenſioni, ſic procede. Si deſcenſio obliqua ſit in priori ſemicirculo, ideſt non ſit maior gr. 180. nunc adde deſcenſioni gr. 180. & quære gradum Eclipticæ conreſpondentem huic aggregato, & ab inuento gradu ſigni ſi demas ſigna ſex, habebis gradum eclipticæ conreſpondentem obliquis aſcenſionibus.

Si

Si deſcenſio obliqua ſit in poſteriori ſemicirculo, detrahendus eſt ab ipſa ſemicirculus, ideſt gr. 180. & cum aggregato, reperto gradui eclipticæ, addenda ſunt ſex ſigna, vt prodeat gradus deſcenſioni conueniens. Exempli gratia. In eleuatione Poli Romæ ſit deſcenſio obliqua gr. 13. m. 32. addendi ſunt huic grad. 180. cum ſit inpriori ſemicirculo, & fient 193. 31. quibus vt diximus correſpondet gr. 10. m. 37. ♎ ab his ſi demantur ſex ſigna communia, prodibunt grad. 10. m. 37. ♈ correſpondentes deſcenſionibus gr. 13. m. 32.

Exemplum in poſteriori ſemicirculo. Sit deſcenſio obliqua ſub altitudine Poli 44. gr. 205. m. 22. ſi ab his detrahantur gr. 180. remanebunt gr. 25. m. 22. quibus ad vnguem correſpondent gr. 14. ♉. Si demum addantur ſex ſigna, prodibit verus locus eclipticæ gr. 14. ♏ conueniens gr. 205. m. 22. deſcenſionis obliquæ.

Si lubet indagare locum Zodiaci debitum datę aſcenſioni in eleuatione Poli cũ gr. & minutis, vt exempli gratia in eleuatione Poli gr. 44. m. 20. Tunc operare per Tabulam minoris eleuationis, ideſt gr. 44. poſtea per Tabulam maioris eleuationis, ideſt poli 45. & de differentia graduum, & minutorum eclipticæ, ſume partem proportionalem pro minutis, qui adiacent integris gradibus Poli eleuationis. Hæc pars proportionalis addenda eſt arcui eclipticæ computato per Tabulam maioris; vel minuenda, ſi locus computatus cum minori eleuatione fuerit maior computato per Tabulam maioris eleuationis Poli. Exempli gratia in eleuatione Poli grad. 44. debetur aſcenſioni obliquæ grad. 9. m. 9. gr. 17. ♈ m. 0. In eleuatione Poli 45. gradibus 9. m. 9. aſcenſionis conuenit gr. 17. m. 27. ♈. differentia inter hunc, & primum ſcilicet gr. 17. m. 0. eſt m. 27. de quibus ſi ſumatur pars proportionalis ſecundum proportionem min. 20. vltra integros gr. 44. Poli eleuationis conſurget minutorum 9. addend. gradibus 17. ♈. m. 0. cum ſit numerus minor computatus cum eleuatione Poli gr. 44. quam computatus cum eleuatione Poli grad. 45. & ſic verus locus Zodiaci, qui debetur gradibus 9. min. 9. aſcenſionis obliquæ ſub altitud. poli grad. 44. min. 20. erit grad. 17. min. 9. ♈. Similiter cadit in omnibus ſi rectè regulas didiceris.

Cæterùm aſcenſio ſtellæ, ſiuè puncti Eclipticæ eſt arcus circuli Æquinoctialis à principio Arietis ſecũdum ordinem ſignorum numératus vſquè ad Ortiuum Horizontem dùm ſtellæ ſeu punctum eclipticæ dictum Horizontem attingit.

Deſcenſio eſt eiuſdem Æquinoctialis arcus à principio Arietis ad Horizontem Occiduum dùm ſtella, vel eclipticæ locus attingit lineam Occidentalem.

Mediatio Cœli eſt ſimiliter arcus Æquinoctialis à principio Arietis vſque ad ſtellam, vel aliud punctum eclipticæ dùm attingit Meridianum.

Pro diuerſo ſitu Æquinoctialis Circuli reſpectu Telluris aſcenſiones, & deſcẽſiones ſubeunt varietatem, In ſphæra namquè recta quando Mundi Poli coincidunt cum Horizonte, & æquinoctialis tranſit per Zenith, & Verticem, cum dictus Circulus interſecet Horizontem ad angulos rectos, aſcenſiones, & deſcenſiones ſunt rectæ: Dum Polus eleuatur ſupra Horizontem, cum ſeparetur Æquinoctialis à Zenith, ac interſecet Horizontem ad angulos obliquos, aſcenſiones, & deſcenſiones ſunt obliquæ.

Aſcenſiones rectæ ſuppuantur ratiocinio triangulorum; obliquæ verò adhibita differentia aſcenſionaliam aſcenſionibus rectis.

Aſcenſio recta loci in ecliptica indagatur tali pacto ex triangulo.

Sicut radius ad tangentem diſtantię loci ab Æquinoctio proximo; ita ſinus cõplementi

plementi Declinationis maximę ad tangentem rectę aſcenſionis.

Quæratur recta aſcenſio grad. 19. Arietis. Declinatio maxima eſt gr. 23. m. 32. complementum ad 90. eſt 66. m. 28. cuius ſinus 91683. tangens gr. 19. diſtantiæ à principio Arietis eſt 34433. tunc.

Sicut rad. 100000. ad 34433. ita 91683. ad 31569. (abiectis quinque primis figuris) quibus reſpondet aſcenſionis rectę gr. 17. m. 31.

Pro indaganda aſcenſione recte cum latitudine.

Sicut ſinus complementi declinationis ſumptæ cum latitudine ſi locus cuius quæritur recta aſcenſio eam obtinuerit, ad ſinum complementi diſtantiæ dicti loci à proximo ſolſtitio; ita ſinus complementi latitudinis ad arcum Æquinoctialis diſtantem ab ſolſtitio Cancri, aut Capricorni. Exemplum.

Quæratur aſcenſio recta grad. 20. Geminorum cum latitud. Merid. gr. 4. o Gradus 20. ♊ diſtat à ſolſtitio ♋ gr. 10. cuius declinatio cum latitud. gr. 4. Merid. eſt gr. 19. m. 9. eius complementum eſt gr. 70. m. 51. cuius ſinus 94466. Sinus grad. 10. diſtantiæ à Coluro eſt 17365. Complementum latitudinis gr. 4. eſt gr. 86. cuius ſinus 99766. Tunc.

Sicut 94466. ad 17365. itá 99766. ad 18335. quibus in tabella ſinuum reſpondent aſcenſionis grad. 10. 34. qui ſublati à grad. 90. ſolſtitio Cancri remanet recta aſcenſio gr 75. m. 26. Sciendum quod ſi locus cuius quæritur aſcenſio recta fuerit à principio ♈. vſque ad gr. 15. ♉. tunc numeratur à principio Arietis; ſic ſi fuerit à principio ♎ ad gr 15. ♏ numeratur à ♎. Si verò fuerit à gr. 15. ♉ ad principium ♋. tunc ſubtrahitur à principio ♋ quemadmodum ſi fuerit à gr. 15. ♏ ad principium ex ſubtratatus à principio Capricorni, & gr. 270.

DE DIFFERENTIA ASCENSIONALI, ET Illius Vſu præcipuo ad indagandas Aſcenſiones, & Deſcenſiones obliquas locorum extra Zodiacum. Cap. X.

EX diuerſa obliquitate circuli Æquinoctialis reſpectu Horizontis variæ vbiquè locorum aſcenſiones, & deſcenſiones contingunt à Rectis, in partibus Eclipticæ, & ſtellis; Varietas hæc vocatur Differentia aſcenſionalis, Arcus nempè æquatoris inter duo puncta ipſius, cum quorum altero oriuntur, & occidunt in ſphæra recta, & cum altero in obliqua, puncta cœleſtia vel in ecliptica vel extra eam verſus Auſtrum, vel Septentrionem; quæ differentia eò eſt maior, quo magis partes recedunt ab Æquinoctiali. Huius differentiæ aſcenſionalis ope conſtructæ ſunt Tabulæ Aſcenſionum obliquarum ad quamlibet Poli eleuationem: ſi namquè differentia aſcenſionalis ſubtrahatur ab Aſcenſione recta in primo ſemicirculo, & ſignis Borealibus; & addatur in ſecundo ſemicirculo, & ſignis Auſtralibus, emerget aſcenſio obliqua. Cuius contrarium in Deſcenſione contingit, quę vt prodeat obliqua in primo ſemicirculo differentia Aſcenſionalis addenda, in poſteriori ſubtrahenda eſt ab recta Aſcenſione.

Poſuimus Tabulas Differentiarum Aſcenſionalium, vt Aſcenſiones, & Deſcenſiones obliquę poſſint extrahi ad ſingulas Poli eleuationes pro Stellis quamcumque latitudinem ſeu Borealem, ſeu Meridianam obtinentibus; cum in Tabulis noſtris tantummodò Aſcenſiones obliquæ ſint conſtructæ cum latitudine nouem gr.

A cuius

A cuius tamen calculi tædio Aſtrophilos ſubleuauit D. *Andreas Moretus* Academiæ Deliæ Patauij Mathematicus familiaris noſter in ſuo de Stellis Fixis Opere, Vbi inſigniorum Stellarum Fixarum quamplurimarum Aſcenſiones, & Deſcenſiones obliquas Ortus, & Occaſus ad ſingulos gradus eleuationis Poli ab 1. ad 60. ſupputauit labore haud pœnitendo.

Differentia Aſcenſionalis apud nos ſumitur in Tabula ex declinatione loci cuius differentia quæritur ad quamcumque Poli altitudinem; ex directo enim gr. declinationis in columna gradus Altitudinis Poli, elicietur differentia dicta, ſi locus ea præditus fuerit. Exemplum.

Quæratur Aſcenſionalis differentia grad. 15. ♌ ſub eleuat. Poli gr. 45. Venetijs, huius loci declinatio eſt gr. 16. m. 24. cum quibus ingreſſi tabulam Differentiarum in columna 45. e directo grad. 16. reperiemus differentiam gr. 16. 40. Declinatio eſt 16. m. 24. cum in grad. 17. declinationis ſit diſtantiæ gr. 17. m. 48. pro gradu latitudinis variat differentia gr. 1. m. 8. de quibus pro min. 24. competent m. 27. rejectis ſecundis; & differentia aſcenſionalis gr. 15. ♌ erit gr. 17. m. 7.

Huius loci 15. ♌ aſcenſio recta eſt gr. 137. 29. à quibus ſi ſubtrahatur differentia Aſcenſionalis gr. 17. 7. cum ſit ♌ in primo ſemicirculo, obliqua aſcenſio erit gr. 120. m. 27. ſub Pol. 45. Si quæratur deſcenſio obliqua gr. 15. ♒; vbi cum ſit eadem declinatio erit eadem differentia Aſcenſionalis grad. 17. 7. Aſcenſio recta gr. 15. ♒ eſt gr. 317. 29. addita differentia aſcenſionali conſurget Aſcenſio obliqua grad. 334. gr. 36.

Eodem pacto contingit in aſcenſione obliqua ſumendo cum latitudine. Quæratur aſcenſio obliqua ſub eleuat. Poli gr. 48. grad. 12. ♌ cum latitudine grad. 6. 0. Boreal. Declinatio huius loci eſt gr. 23. 0. quæ in tabella Differentiarum Aſcenſional. ſub columna 48. e directo dat differentiam gr. 28. m. 8. Aſcenſio gr. 12. ♌ cum latit. gr. 6. Bor. eſt gr. 136. 18. à qua ſi ſubtrahatur differentia gr. 28. m. 8. emerget aſcenſio obliqua gr. 108. 16.

Colligitur autem differentia Aſcenſionalis ex Triangulo hoc pacto. Sicut rad. ad tangent. eleuationis Poli, ita tangens declinationis puncti, cuius quæritur differentia ad ſinum Differentiæ Aſcenſionalis. Exemplum. Quæratur differentia aſcenſionalis ſub eleuat. Pol. gr. 42. erit hoc pacto. Declinatio gr. 20. ♌ eſt grad. 14. m. 52. cuius tangens 26546, tangens gr. 42. eleuationis Pol. 90040.

Sicut 100000. ad 26546. ita 90040. ad 23902. quibus reſpondent in tabella ſinuum gr. 13. 50. Differentiæ aſcenſionalis.

DE DIVISIONE PARTIVM IN Figura Cæleſti. Cap. XI.

COEleſtis figura diuiditur in duas partes, in aſcendentem, & deſcendentem. Aſcendens vocatur medietas, quæ eſt à medio cœli, ſiue linea meridiana ad imum cœli per viam orientis, & Horoſcopi, & ſic domus 10. 11. 12. 1. 2. 3. ſunt in parte cœli aſcendente; deſcendens dicitur quæ eſt à medio cœli, vſque ad imum per partem occidentis, cuiuſmodi ſunt 9. 8. 7. 6. 5. 4. domus. Planetæ, vel aliud dirigendum permanens in parte cœli aſcendente, dirigitur per aſcenſiones; exiſtens verò in parte deſcendente, per deſcenſiones; hæc diximus cum ſint neceſ-

faria

ſuria ad directoriam artem; de diuiſione autem figuræ, & alijs, copioſiſſimè diximus in noſtris Ephæmeridibus; ſolum notandum, quod à linea Orientali ad Occidentalem verſus medium cæli, dicitur ſupra terram; ab Orientali verò ad Occidentalem verſus imum cæli, dicitur ſub terra.

PRO INVENIENDA DISTANTIA *Stellæ à Meridiano, ſeu Medio Cæli.* Cap. XII.

SI Stella fuerit inter Decimam domum, & Horoſcopum, tunc deme aſcenſionem rectam medij Cæli ab aſcenſione recta ſtellæ, & quod remanet erit diſtantia à M.C. Exempli gratia. Medium Cæli in genitura Excellentiſſimi Columnæ eſt gr. 12. m. 27. ♋ cuius aſcenſio recta eſt gr. 103. m. 32. & Pars fortunæ in dicta geneſi eſt in gr. 8. m. 50. ♌ cuius recta aſcenſio eſt gr. 131. min. 17. Si ab his ſubtrahantur aſcenſiones medij cæli, reſultabit diſtãtia Partis Fort. à M.C. grad. 27. m. 45. hoc pacto.

	G.	M.
Aſcenſio recta Partis fortunæ	131	17
Aſcenſio M. C. recta ſubtrahend.	103	32
Diſtantia Partis Fort. a M. C.	27	45

Si Stella fuerit inter M.C. & angulum occidentis, tunc ſubrahe aſcenſiones rectas Stellæ, ab aſcenſionibus rectis M.C. & reſiduum erit diſtantia à M C.

Si Stella ſit inter lineam occidentis, & Imum Cæli, ſiue domum quartam, tunc ſubtrahe aſcenſiones rectas I. C. ab aſcenſionibus rectis Stellæ, & habebis diſtantiam Stellæ ab imo Cæli.

Si fuerit ſtella inter aſcendentem, & I. C. tunc ſubtrahuntur aſcenſiones rectæ Stellæ, ab aſcenſionibus Rectis I. C. eodem enim modo operatio conſurgit inter M. C. & aſcendentem, quo inter lineam Occidentis, & I. C. eodemque modo inter M. C. & Occidentalem angulum, quo inter aſcendentem, & I. C. cum oppoſitorum eadem ſit ratio. res ex ſe clara eſt.

DE DIRECTIONE MEDII COELI, *& Aſcendentis.* Cap. XIII.

SI dirigendus ſit Meridianus, vel linea medij Cæli, ſiue Stella in meridiano exiſtens, ſubtrahe aſcenſiones rectas medij Cæli ab aſcenſionibus rectis promiſſoris acceptis cum latitudine ſi promiſſor ea præditus fuerit, & quod remanſerit erit directio quæſita. Exempli gratia. In geneſi Excellentiſſimi Principis dirigendum ſit medium Cæli ad gr. 0. m. 0. ♌. Aſcenſio recta M.C. eſt gr. 103. m. 32. aſcenſio recta primi puncti ♌ eſt grad. 122. min. 12. ſubtractis ad his, aſcenſionibus M. C. remanebunt gr. 18. m. 40.

	G.	M.
Aſcenſio recta grad. 0. m. 0. ♌	122	12
Aſcenſio recta med. C. in gr. 12. m. 27. ♋	103	32
Directio	18	40

Diri-

Dirigatur idem M. C. ad ☌ ♄, qui eſt in gr. 2. min. 48. ♌ cum grad. o. min. 3. altitud. merid. aſcenſio recta Saturni, vt ſupra diximus eſt grad. 125. min. 5. à quibus ſubtractis aſcenſionibus rectis M. C. conſurget directio quæſita, hoc modo,

	G.	M.
Aſcenſio recta Saturni.	125	5
Aſcenſio recta M. C.	103	32
Directio quæſita	21	33

Alterum exemplum Pars Fortunæ eſt in grad. 8. min. 50. ♌ eius recta aſcenſio per cap. 4. eſt grad. 131. min. 17. ſi ab his ſubtrahatur recta aſcenſio, prodibit directio grad. 27. min. 45.

	G.	M.
Aſcenſio recta Partis Fort.	131	17
Aſcenſio recta M. C.	103	32
Directio	27	45

Martis oppoſitum cadit in gr. 17. min. 31. ♌ cum latitud. Septentr. grad. o. m. 14. cuius loci recta aſcenſio eſt grad. 140. min. 3. ſi ab his auferatur aſcenſio M. C. Directio erit grad. 36. m. 31.

	G.	M.
Aſcenſio recta ☍ ♂.	140	3
Aſcenſio M. C.	103	32
Directio	36	31

Vltimum exemplum oppoſitio ♃ cadit in grad. 22. min. 11. ♌ in genitura Excellentiſſimi Principis cum grad. o. m. 25. latitud. Septentr. cuius aſcenſio recta eſt grad. 144. min. 42. ſi auferamus ab his rectas aſcenſiones habebimus directionem grad. 41. min. 10. tribuendo cuilibet gradui annum vnum, & ſingulis quinque minutis menſem, M. C. peruenit ad ☍ ♃ directione anno 41. completo menſe ſecundo completo 1576. Aprilis.

HOROSCOPVS, Aſcendens, ſiue Orientalis linea dirigitur ad ſuos Promiſſores per aſcenſiones obliquas conuenientes Poli eleuationi tuæ Ciuitatis: ſubtrahuntur enim obliquę Aſcenſiones Aſcendentis ab obliquis aſcenſionibus Promiſſoris, & quod reſultabit erit directio explorata. Exempli gratia, dirigamus Horoſcopum in Excellentiſſimi Principis genitura, qui eſt gr. 10. min. 38. ♎ ad radium quadratum Martis, qui cum ſit in gr. 17. min. 31. ♒ mittit □ ad grad. 17. m. 31. ♏ abſque latitudine cum ſiat in ecliptica.

Sub eleuatione Poli grad. 41. min. 50. Romæ, aſcenſió huius aſcendentis eſt gr. 193. 32. Aſcenſio obliqua grad. 17. min. 31 ♏ eſt gr. 241. min. 2. à quibus ſublatis

aſcenſionibus aſcendentis, remanet grad. 47. min. 30. & ſic aſcendens directione peruenit ad quadratum ♂ anno 47. completo cum menſibus ſex.

Dirigatur præfatus Horoſcopus ad △ ♀, qui cadit in gr. 13. min. 31. ♏ cum lat. Septentr. grad. 0. min. 30. cum debeat accipi media pars latitudinis, & mutari denominatio in Trino, vt diximus cap. 9. Sub eadem Poli eleuatione huius loci aſcenſio obliqua Horoſcopi, directio prodibit gr. 42. m. 1.

	G.	M.
Aſcenſio obliqua △ Veneris,	235	33
Aſcenſio obliqua Horoſcopi	193	32
Directio	42	1

Vltimum exemplum in eleuatione Poli gr. 44. Sit aſcendens gr. 20. min. 15. ♌ cuius obliqua aſcenſio eſt gra. 127. min. 55. dirigatur ad ♄ qui ſit in gr. 12. m. 30. ♏ cum gr. 1. min. 4. latitud. Septentr. cuius obliqua aſcenſio eſt grad. 195. m. 45. ex quibus ſi abijciantur aſcenſiones obliquæ aſcendentis conſurget quæſita directio gr. 67. min. 50. vt vides.

	G.	M.
Aſcenſio obliqua Saturni	195	45
Aſcenſio obliqua Horoſcop.	127	55
Directio	67	50

Si dirigendum ſit Imum Cæli, eodem modo dirigitur quo medium. Si dirigenda ſit linea Occidentalis, tunc ſubtrahendæ ſunt eius deſcenſiones obliquæ, à deſcenſionibus obliquis promiſſoris, & reſiduum erit directio quæſita eodem modo quo in Horoſcopo: hac tamen differentia quod Aſcendens dirigitur per aſcenſiones, Occidens per deſcenſiones, Res non indiget exemplis.

Cæterùm dirigatur Aſcendens ad Arcturum ſtellam extrà Zodiacum, quæ tempore Excellentiſs. Principis erat in gr. 17. m. 39. ſigni Libræ cum latitudinis grad. 31. m. 2. Bor.

Declinatio Arcturi eſt gr. 20. m. 44. Aſcenſio recta gr. 209. 20. In Tabella Differentiarum aſcenſionalium cum grad. 10. m. 44. Declinationis eruuntur ſub altitud. Poli 42. grad. 19. m. 52. qui additi aſcenſioni rectæ (cum ſit in ſecundo ſemicirculo) conſtituunt aſcenſionem obliquam Arcturi gr. 229. 18. à quibus ſubtractis aſcenſionibus obliquis Aſcendentis gr. 193. m. 32. conſurget directio quæſita gr. 35. m. 46. Aſcendentis ad Stellam Martialem, & Iouialem Arcturum: quo tempore 1570. 1571. Pontificiæ claſſis Præfectus in Navali bello contra Turcas à Pio V. creatus eſt.

	G.	M.
Aſcenſio Arcturi gr.	229	18
Aſcenſio Aſcend. gr.	193	32
Directio	35	46

DE

DE CIRCVLIS POSITIONIS.
Cap. XIV.

DIrigenda loca præter Aſcendentem, & M.C. ex Ptolem. ſunt Sol, Luna, & pars Fortunæ, & pro aliquibus cerebri affectionibus obnoxijs Mercurius, qui cum raró ſint in linea meridiana, vel Orientali reliquum eſt, vt diſcamus quomodo dirigantur extra angulos exiſtentes. Pro cuius rei faciliori cognitione ſciendum, quòd circulus, qui tranſit per Zenith noſtrum, & polos mundi eſt circulus Meridianus: Alius verò, cuius Poli ſunt Zenith, & Nadir diſtans ab ijs grad. 90. & interſecans Meridianum bifariam, & ad angulos rectos dicitur Finitor. Cuius vtriuſque ope Æquator in 4. Quadrantes ſemper dirimitur. Alij circuli maximi ducti per eandem comunem interſectionem Meridiani, & Finitoris, Vocantur Circuli Poſitionis, & ſunt tanquam tot Horizontes obliqui, & numero propè infiniti, attamen pro noſtro negotio tot ſolummodò ſunt concipiendi inter Meridianum, & Finitorem, quot ſunt gradus eleuationis Poli Ciuitatis, ſecundum cuius obliquas aſcenſiones, conſtitutus eſt Finitor Orientalis, vt exempli gratia ſub Romæ altitudine ponemus inter Finitorem, & Meridianum interiacere 42. circulos; in eleuatione poli 52. Leodij 52. Poſitionis circuli etiam interiacent, & ſic in alijs.

Dirigendus ergo locus, qui non ſit in Horoſcopo, vel meridiano, artificialiter videndum eſt, in quo horum circulorum interiacentium inter meridianum, & Horoſcopum reperiatur, quo reperto dirigetur per aſcenſiones obliquas illius circuli, ſeu Poli eleuationis ad ſuos Promiſſores, non ſecus, ac ſi eſſet in aſcendente regionis ſub illa poli eleuatione conſtitutæ. Exempli gratia, in genitura prædicta Pars Fort. eſt inter M. Cœli, & orientem, & reperta eſt, vt dicemus in grad. 18. min. 17. circuli poſitionis ex 42. qui interiacent inter Orientem, & M. Cœli ſub Romę altitudine, dirigetur itaque Pars Fort. ad quæcumque loca, ac ſi eſſet aſcendens regionis per aſcenſiones obliquas Poli 18. min. 17. In hoc tota directoria ars conſiſtit; ob id omni ſtudio conabimur facilè, & clarè docere quomodò in quacumque Poli eleuatione reperiatur.

Inuenienda primò eſt declinatio loci dirigendi per tertium Caput, & an ſit meridiana, an Septentrionalis; ſub terra, an ſit ſupra terram: ſecundo videnda eſt diſtantia eiuſdem loci à medio Cæli, quod abſolues per cap. 10. Intra deinde tabulam Poſitionum, conuenientem tuæ Ciuitati, & à ſiniſtra quære diclinationem loci dirigendi in linea prima, deſcendente quidem, ſi declinatio fuerit Septentrionalis ſupra terram, vel meridiana ſub terra; & in deſcendente ſi declinatio fuerit meridiana ſupra terram, vel Borealis ſub terra; è directò gradus declinationis reperiendi ſunt gradus quibus locus dirigendus diſtat à M.C. & illicò in fronte tabulæ ſupra occurret circulus poſitionis, ſeu eleuationis Poli; quod ſi non inueneris gradus declinationis, & minuta ad vnguem, ſicut etiam *gradus diſtantiæ à M.C. accipies numeros propinquiores, & ſic ſine notabili errore, & breuiſſimè aſſequeris intentum: Verùm ſi, ſcrupuloſius hoc negotium pertractaueris, cùm adfuerint minuta vltra integros declinationis gradus, & numerus grad. & min. diſtantiæ à M.C. non erit exactè inuentus; tibi erit in hoc caſu procedendum hoc pacto.*

Si diſtantia Significatoris à M. C. non reperiatur ad vnguem in Tabula poſitio-

tum, vtendum eſt parte proportionali, prout in ſuperioribus egimus: Sumptus enim angulus communis è directo gradus declinationis, conferendus eſt cum collaterali ſequenti, & de differentia (quæ eſt portio competens vni gradui eleuationis Poli) capienda eſt pars proportionalis pro minutis quibus differt angulus communis à diſtantia à M. C. quæ pars proportionalis addenda eſt eleuationi Poli inuentæ, & habebis eleuationem ad gradus, & minuta; res indiget exemplo. In genitura Excellentiſſimi Principis pars Fortunæ diſtat à M. C. grad. 27. m. 45. eius declinatio Septent. ſupra terram eſt grad. 18. min. 6. cum hac declinatione in Tabula poſitionum ad latit. Pol. gr. 42. è directo non reperies præciſè diſtantiam à M. C. ſcilicet gr. 27. min. 45. & ob id ſumas proximè minorem, quæ eſt grad. 27. min. 13. & conferas hunc cum collaterali immediatè ſequenti, qui eſt gr. 28. min. 54. & colliges differentiam gra. 1. m. 41. Simul verò min. 101. portionem videlicet quæ debetur vni gradui eleuationis Poli, & vt vides differentia erit primus terminus pro regula Aurea poſtmodum ſume differentiam, quæ eſt inter angulum communem, ideſt grad. 27. min. 13. & diſtantiam a M. C. quæ ponitur grad. 27. 45. & eſt minutorum 32. qui eſt ſecundus Terminus ducendus in tertium, ideſt 60. Ductus ergo ſecundus in tertium conficit 1920. qui ſi diuidatur per primum 101. conſtituet min. 18. addenda primò inuentæ eleuationi ſupra grad. 27. m. 13. ideſt grad. 18. eleuationis poli. Et ſic eleuatio circuli poſitionis, ſeu poli Part. Fort. erit grad. 18. m. 18. Quod ſi declinatio habuerit minuta vltra gradus, tunc ingredere cum declinatione proximè minori, & extrahe circulum poſitionis; deinde extrahe iterum circulum cum declinatione proximè maiori, & de differentia harum eleuationum poli accipe partem proportionalem pro minutis declinationis vltra gradus integros, quam adde primæ extractæ eleuationi, ſi fuerit minor ſecunda, vel deme à prima, ſi fuerit poſtrema maior, exempli gratia, declinatio part. Fortunæ eſt gr. 18. m. 6. manente declinatione grad. 18. min 0. & diſtantia a medio C. grad. 27. min. 45. fuit inuentus circulus poſitionis grad. 18. m. 18. extrahendus eſt etiam circulus cum gr. 19. declinationis hoc modo; angulus communis è directo grad. 19. eſt grad. 27. min. 34. differentia inter hunc numerum, & collateralem ſequentem, ideſt gr. 29. min. 18. erit grad. 1. min. 44. Simul vero m. 104. & hic eſt primus numerus differentia inter angulum communem, & diſtantiam à med. C. eſt min. 11. qui eſt numerus ſecundus, qui ductus in 60. conſtituit 660. hic diuiſus per primum 104. tribuit min. 6. quæ ſunt addenda priori inuentæ eleuationi circuli gr. 18. & ſic circulus poſitionis cum gr. 19. declinationis, & diſtantiæ à med. C. 17. min. 45. erit grad. 18. min. 6. differentia inter repertum circulum cum grad. 18. declinationis, & alterum cum gr. 19. eſt min. 12. quæ eſt portio competens vni gradui declinationis; de quibus pro min. 6. declinationis vltra integros grad. 18. Part. Fort. competit min. 1. reiectis ſecundis 12. hoc ſi ſubtrahatur ab inuento circulo cum gr. 18. m. 0. declinationis videlicet gr. 18. min. 18. conſtituet verum circulum, ſub eleuatione grad. 18. min. 17. Part. Fortunæ.

Cæterùm ſine errore notabili poterit dirigi cum eleuatione Poli 18. ſicut in alijs Caſibus quando vltra gradus ſcrupula non ſuperant 30. nam ſi exceſſerint 30. poterit ſumi gradus ſubſequens.

DE DIRECTIONE SIGNIFICATORVM *extra angulos in parte cœli Aſcendente*. Cap. XV.

SI Significator dirigendus fuerit in parte inter medium cæli, & aſcendentem; tunc habita eius declinatione, & diſtantia à M. C. reperiendum eſt in quo circulo poſitionis permaneat; & à promiſſoris aſcenſionibus obliquis acceptis ſub hac poli eleuatione ſi aſcenſiones obliquę ſignificatoris demantur, reſultabit quęſita directio. Exempli gr. Fortunæ circulus poſitionis ſuperiori capite fuit inuentus gr. 18. m. 17. Aſcenſio obliqua gr. 8. m. 50. ♌ loci partis Fort. ſub altit. Pol. gr. 18. (relinquamus pro faciliori doctrina m. 17. eleuat.) eſt gr. 125. m. 11. Si dirigatur ad ☍ ☉, quæ cadit in gr. 13. m. 38. ♍, tunc ſubtrahe ab aſcenſionibus obliquis oppoſiti loci Solis, quæ ſub altitudine Pol. gr. 18. ſunt grad. 162. m. 50. obliquas aſcenſiones Partis Fortunę, & prodibit directio quęſita gr. 37. m. 39.

	G.	M.
Aſcenſio obliqua oppoſiti Solis ſub Alt. pol. gr. 18.	162	50
Aſcenſio obliqua ſub eadem altitudine Fortunę.	125	11
Directio quęſita.	37	39

In eadem genitura Excellentiſsimi Principis Columnę dirigamus Saturnum ad oppoſitum Solis pro exemplo cum ♄ neque in Meridiano, neque in Horizonte ſit. Primo reperiendus eſt circulus poſitionis ♄, cuius operationes hic replicare non erit abs re, Declinatio gr. 2. m. 48. ♌ cum latit. merid. gr. o. m. 3. loci ♄, eſt gr. 19. m. 32. Septentr. ſupra terram; diſtantia ♄ à M. C. eſt gr. 21. m. 33. Cum hac declinatione gr. 19. Septentr. ſupra terram in tabula poſitionum ſub Alt. Pol. gr. 42. è directò non reperitur pręciſe diſtantia gr. 21. m. 33. ſed gr. 21. m. o. & ſupra in fronte eleuatio Poli gr. 14. dirigemus ergò Saturnum ad Solis oppoſitum, & alios promiſſores per aſcenſiones obliquas Pol. 14. Verum ſi cupis eleuationem poli pręciſè ad gradus, & minuta, tunc ſicut cap. præced. vtere Parte proportionali hoc modo. Facta collatione anguli communis reperti ſcilicet gr. 21. m. o. cum collaterali ſequenti gr. 22. 37. differentia eſt min. 97. quæ eſt primus numerus pro regula; differentia inter angulum communem, & diſtantiam ♄ à M. C. eſt m. 33. qui eſt ſecundus numerus; productus ergo 33. in 60. efficient 1980. qui diuiſus per primum, & 97. dabit m. 20. addenda primæ eleuationi inuentæ, & ſic eleuatio Poli ♄ erit gr. 14. m. 20. Corrigenda demum eſt ratione minutorum declinationis vltra integros gradus 19. cum quibus ſuperior eleuatio eſt inuenta; Cum declinatione gr. 20. angulus communis vicinior diſtantiæ propoſitæ eſt gr. 21. m. 17. facta collatione cum ſequenti cadit differentia m. 98. qui eſt primus numerus pro regula; differentia inter repertum, & diſtantiam à M. C. eſt m. 16. pro ſecundo numero; ductus ſecundus m. 16. in tertium m. 60. efficit 960. Diuiſus 960. per 98. tribuet m. 10. addenda, & ſic Poli eleuatio reperta cum gr. 20. declinationis erit gr. 14. m. 10. Differentia inter hunc, & repertum ſupra cum gr. 19. declinationis eſt m. 10. de quibus capiendo partem proportionalem pro m. 33. declinationis vltra gr. 19. integros competent m. 5. cum dimidio, quæ ablata à priori in-

uenta

uenta eleuatione cum gr. 19. min. 0. declinationis reſultabit exquiſitiſſima Poli eleuatio, ſeu circulus Poſitionis ♄ gr. 14. m. 14. ſec. 30.

Cæterùm pro ſumenda parte proportionali in omnibus ſexagenaria tabula vtendum ſublatis multiplicatione, ac diuiſione pro faciliori indagine.

	G.	M.	
Circulus Poſitionis inuentus cum grad. 19. Declinationis & diſtantia à M. C. gr. 21. m. 35.	14	20	
Inuentus cum declinat. gr. 20.	14	10	
Differentia.	00	10	
Pars proportionalis pro m. 35. declinationis	00	5.	30. ſubtr.
Vera circuli Poſitio ♄ ſeu eleuatio poli	14	14	30.

Aſcenſio obliqua ♄ in eleuat. pol. gr. 14. m. 15. eſt gr. 119. min. 55. (Si rectè comparaueris obliquas aſcenſiones poli 14. cum alijs ſub pol. 15. & ſumpſeris partem proportionalem pro m. 15. vltra integros grad. pol. 14.) obliqua aſcenſio oppoſiti Solis, ideſt gr. 15. m. 38. ♍. eſt gr. 165. m. 17. Ab his ſubtractis aſcenſionibus obliquis Saturni conſurget directio quæſita.

Aſcenſio obliqua ☍ ☉	165	17
Aſcenſio obliqua ♄.	119	55
Directio.	45	22

Si dirigenda ſit ☽ in genitura præfata Principis Columnæ, quę eſt inter Aſcẽdentem, & Imum cæli, tunc per eius diſtantiam ab Imo cæli, quæ eſt gr. 0. m. 45. & cum declinationis Merid. ſub terra gr. 21. m. 49. in Tabula Poſitionum dicta gr. 42 eruitur circulus poſitionis gr. 0. min. 30. & in hoc caſu cum ☽ non habeat poli eleuationem ad gradum integrum, capiendæ ſunt aſcenſiones rectæ in Tabula aſcenſionum rectarum, tàm ſignificatoris, quàm promiſſoris: & deinde ſumendæ ſunt aſcenſiones obliquæ ſub Alt. pol. gr. 1. & facta collatione, de differentia capienda eſt pars proportionalis addenda aſcenſioni obliquæ ſi fuerit minoris numeri quam aſcenſio recta, vel minuenda ſi fuerit maioris, vt in exemplo, ☽ aſcẽſio recta eſt gr. 282. m. 47. cum ſit in gr. 11. m. 51. ♑ Aſcenſio obliqua huius loci ſub altit. pol. gr. 1. eſt 283. 10. differentia eſt m. 23. de qua pro min. 30. Altit. pol. competunt min. 12. (reiectis ſecundis) quæ ſubtracta ab aſcenſione obliqua, cum ſit maioris numeri quàm recta, conſtituent obliquam ☽ aſcenſionem ſub altit. pol. gr. 0. m. 30. gr. 282. m. 58. & ſic venabitur aſcenſio obliqua cuiuslibet Promiſſoris ad quem debeat dirigi Luna. Dirigamus Lunam ad corpus Martis in gr. 17. m. 31. ♒ cum gr. 0. min. 14. latit. Merid. Obliqua aſcenſio Martis eodem modo collecta, quo egimus in Luna eſt gr. 320. m. 25. à quibus ſubtractis aſcenſionibus obliquis Lunæ conſurget directio quæſita vt.

	G.	M.
Aſcenſio obliqua ☌ ♂	320	25
Aſcenſio obliqua ☽ ſubtrah.	282	58

Di-

Directio quæſita.	37 27

Alterum exemplum. Iouis obliqua aſcenſio cum Altit. pol. gr. o. m. 30. eſt 324. 50. à quibus ſi ſubtrahes aſcenſiones obliquas ● habebis directionem ● ad corpus ♃. vt.

	G.	M.
Aſcenſio obliqua loci ♃	324	50
Aſcenſio obliqua ●	282	58
Directio	41	52 anno. 1577.

DE DIRECTIONE SIGNIFICATORIS EXTRA *angulos in parte cæli Deſcendente*. Cap. XVI.

PArs Deſcendens à M. C. vſque ad Imum per viam occidui Finitoris dirigitur per deſcenſiones obliquas communiter: nobis autem placet omnia loca figuræ dirigere per aſcenſiones, vt in parte aſcendente, vt dicemus capite ſequenti: poſuimus nihilominus hanc communem viam vt cuilibet liberum ſit vti qua voluerit. Si Stella dirigenda ſit inter Medium cœli, & lineam occidui Finitoris, cum diſtantia à Meridiano, & declinatione, vt ſupra inueniendus eſt circulus poſitionis, ſecundum quem obliquæ deſcenſiones Significatoris per cap. quintum inuentæ, ſi ſubtrahantur à deſcenſionibus obliquis Promiſſoris conſtituent quæſitã directionem. Si dirigendus locus fuerit inter lineam Occidentalem, & Imum cęli, cum diſtantia ab I. C. & declinatione more ſolito extrahe circulum poſitionis, & deſcenſiones obliquas loci dirigendi ſecundum inuentam eleuationem poli ſumptas deme à deſcenſionibus Promiſſoris ſub eadem pol. altitudine acceptis, & habebis directionem quæſitam; afferamus exemplum de Sole quæ in parte cæli deſcendente eſt inter Occidentem & 4. domum in gr. 13. m. 38. ♓ in genitura Excellentiſſimi Principis Columnæ. Solis declinatio eſt gr. 6. min. 27. meridiana ſub terra, eius recta aſcenſio eſt gr. 344. m. 56. diſtat ab Imo cœli gr. 61. m. 24. In tabul. Poſition. pol. 42. extrahitur cum hac diſtantia ab I. C. & declinatione merid. ſub terra Solis circulus poſitionis gr. 36. m. 53. (exemplificemus nos in Pol. gr. 37. m. o.) ſub cuius altitud. aſcenſio obliqua oppoſiti loci ſolis ideſt gr. 13. m. 38. ♍ eſt gr. 160. m. 3. quibus ſi addantur gr. 180. conſtituent deſcenſionem obliquam Solis gr. 340. m. 3. Dirigatur nunc Sol ad radios ſextiles Martis ſatellitij, incidentes in gr. 17. m. 31 ♈ cum latitud. merid. gr. o. m 7. capienda eſt aſcenſio gr. 17. m. 31. ♎ cum lat. Bor. gr o. m. 7. quæ ſub alt. pol. gr. 37. eſt gr. 201. m. 20. additis 180. conficiunt obliquam ⚹ ♂ deſcenſionem gr. 381. m. 20. à quibus ſublato circulo, ſeu gr. 360. remanent gr. 21. m. 20. quæ eſt obliqua deſcenſio ſextilis Martis.

	G.	M.
Deſcenſio obliqua ſextilis Martis gr.	21	20
Deſcenſio obliqua Solis.	340	3
Directio 1576. Aprilis.	41	17

Pro ſubtractione addendus eſt circulus ſextili Martis, & vt primum erit gr. 38[?] m. 20. vt ab eo ſubtrahere poſſimus deſcenſiones Solis gr. 340. m. 3.

Alterum exemplum, ſextilis ♃ cadit in gr. 22. m. 11. ♈. cum lat. merid. gr. o. m. 12. aſcenſio obliqua huius loci oppoſiti eſt gr. 207. m. 1. ſi addantur gr. 180. conſurgent gr. 387. m. 1. à quibus ſi detrahimus obliquas deſcenſiones Solis, habebimus directionem Solis ad ſextiles Iouis gr. 46. m. 58.

	G.	M.
Deſcenſio obliqua ✶ ♃	387	1
Deſcenſio obliqua Solis	340	3
Directio	46	58

QVOMODO SIGNIFICATOR CONSTITVTVS IN parte cæli Deſcendente dirigatur per Aſcenſiones, ac ſi eſſet in parte Aſcendente. Cap. XVII.

Difficilis, & tædioſa eſt ſupputatio in parte cœli deſcendente, & ob id modũ apponere decreuimus dirigendi per oppoſita, Significatores conſtitutos in deſcendente parte ad ſuos promiſſores per aſcenſiones non ſecus ac ſi eſſent in parte aſcendente, quod facilè aſſequeris ſi tàm Significatorem, quàm Promiſſores cõſtitueris in locis oppoſitis cum oppoſita latitudine ſi quam habuerint, & ſumpſeris aſcenſiones Significatoris ſubtrahendo eas ab aſcenſionibus Promiſſoris, vt prodeat directio. Exempli grat. (repetamus directiones Solis constructas in parte cæli deſcendente) ſi dirigendus eſſet Sol per oppoſita, tunc debemus conſtituere Solem in loco eius diametraliter oppoſito ſcilicet gr. 13. m. 38. ♍, & ſumpta huius loci declinatione, quæ eſt eadem cum declinatione loci oppoſiti, & ſumpta Solis diſtantia à M.C. idem circulus poſitionis eruetur, ſicut in alio calculo in parte deſcendente gr. 36. m. 53. Aſcenſio obliqua Solis eſt gr. 160. m. 3. vt patet ſub eleuat. pol. gr. 37. in gr. 13. m. 28. ♍.

Poſito Sole in loco oppoſito vt ſignificatore, promiſſores etiam in oppoſitis conſtituendi ſunt, & Martis ſextilis qui cadebat in gr. 17. m. 31. ♈ cum latitudine merid. gr. o. m. 7. ponendus eſt in gr. 17. m. 31. ♎ cum latit Sept. gr. o. m. 7. ſextilis ♃ qui erat in gr. 22. m. 11. ♈ cum lat. merid. gr. o. m. 12. conſtitui debet in gr. 22. m. 11. ♎ cum latit. Sept. gr. o. m. 12. & ſic de reliquis Promiſſoribus, & extrahendæ ſunt eorum obliquæ aſcenſiones ſub latit. pol. gr. 37. vt ſi ab ipſis ſubtrahimus obliquas aſcenſiones Solis habeamus quæſitas directiones hoc pacto.

Aſcenſio obliqua gr. 17. m. 31. ♎ cum latit. Sept. gr. o. m. 7. ſub altit. pol. gr. 37. eſt gr. 201. m. 20. à quibus demptæ aſcenſiones obliquæ Solis gr. 160. m. 3. tribuent directionem Solis ad ✶ Martis gr. 41. m. 17. eamdem omnino cum inuenta in parte deſcendente per deſcenſiones.

Aſcenſio obliqua ✶ ♃ gr. 22. m. 11. ♎ cum lat. Sept. gr. o. m. 12. ſub eadem poli eleuat. eſt gr. 207. m. 1. ſi ſubtrahimus ab his aſcenſiones Solis obliquas habebimus directionem exquiſitam Solis ad ✶ ♃.

G. M.

	G.	M.
Aſcenſio obliqua ✶ ♃.	207	1
Aſcenſio obliqua Solis.	106	3
Directio.	46	58

Plura apponeremus exempla, ſed ſatis hæc videntur cum nulla adſit difficultas quotieſcumque conſtituentur Significatores, & Promiſſores in parte aſcendente qui erant in parte deſcendente, & cum contraria latitudine, ſi qui ea prædit fuerint.

DE PROFECTIONIBVS. Cap. XIIX.

PRofectio eſt æqualis, & regularis deuolutio, ſeù inceſsio Solis, & aliorum ſignificatorum per Zodiacum ſecundùm ordinem ſignorum; quæ triplex ſtatuitur ab Antiquis; Annua, Menſurna, & Diurna, de quibus compendiosè diſſerendum.

In Annua profectione cuilibet anno Solari tribuitur vnum ſignum, & ſumitur à reditu Solis ad ſimilem fermè punctum, in quo erat in principio primi anni, & ſic omnium annorum initio, profectiones ſunt æquales in iiſdem gradibus ſignorum, vt ſi profectio primi anni ſit Sole, verbi gratia, verſante in 2. gr. ♉, ſecundi anni erit in 2. grad. ♊, tertij anni 2. grad. ♋, & ſic deinceps quouſque 13. anno iterum deuoluatur ad grad. 2. ♉; quem ordinem retinebit perpetuò ſingulis 12. annis regrediendo ad primum locum, vt vides in ſequenti exemplo.

In hac profectione cum adſit intercapedo ſigni vnius in toto Anno ſolari, pro ſingulis m. 59. ſec. 8. & motui diurno Solis competent dies 12. & ſignificatur proficiſcetur ſingulo menſe duos gradus cum dimidio: quod quamuis clarum, illuſtremus nihilominus exemplo. In Genitura poſita 1535. die 26. Febr. hor. 7. m. 54. P. M. Sol eſt in gr. 13. m. 38. ſigni ♓. Saturnus in gr. 2. m. 48. ſigni ♌. diſtantia, & differentia inter Solem, & Saturnum eſt ſignorum quatuor grad. 19. m. 10. ſigna 4. dant quatuor annos, gradus 19. m. 10. dant dies 233. vt patet in Tabula diurni motus annuarum profectionum quamuis ibi reperiantur grad. 19. m. 8. In annis ergo quatuor completis, & diebus 233. Sol proficiſcitur ad Saturnum.

In profectione Menſurna vnicuique menſi dierum 28. h. 2. m. 17. ſec. 37. tribuitur ſignũ vnum, ita vt ſignum profectionis annuæ ſit ſignum primi menſis, & hoc modo annus ſolaris diuidetur in 13. partes æquales; exempli gratia. In præfata genitura primum ſignum profectionale primi menſis eſt ♎. ſecundi ♏. tertij ♐. & ſic per ordinem, ita vt anno ſequenti ſignum profectionale primi menſis ſit ♏.

In profectione menſurna, ſeù menſtrua ſingulo diei tribuimus grad. 1. m. 4. ſec. 4. & ſic in diebus 337. h. 3. m. 31. ſec. 23. totus perficitur circulus, vt conſpicitur in Tabella diurni, & horarij motus menſtruarum profectionum expanſa.

In profectione Diurna tribuitur ſignum pro diebus duobus, tribus horis & m. 52. & ſic menſis profectionalis ſub diuiditur in 13. etiam partes. In hac profectio-

ne tribuitur ſingulis diebus grad. 13.53. Additis enim grad. 13.53. profectioni primi diei, conſurget profectio diei ſecundi, & ſic deinceps. Hæc clariùs conſpicies in ſequentibus Tabellis Diurnarum Profectionum.

Habes enim infrà Profectionum omnium tabulas, de quibus Ptol. lib. 4. cap. vlt. Quadrip. breuiter, & compendiosè loquitur: Inter has autem conſtruximus duas præcipuas, videlicet tabulas diurni motus Annuarum, & Menſurnarum profectionum expanſas ad ſingulos cuiuslibet anni dies, horas, & minuta, vt non modò in eas ingredi poſſis cum diebus, horis, & minutis; ſed etiam cum gradibus, & minutis, nempè vt non ſolùm, quandocunque ſcire volueris quot dies, & horas à die, & ab hora alicuius geneſis, vel reuolutionis importent tot gradus, & minuta, atque vicissim quot gradus, & minuta importent tot dies, & hora, & minuta, id illicò videas; ſed etiam vt quandocunque ſcire volueris, quò peruenerit à die pariter alicuius geneſis, vel reuolutionis profectio annua, aut menſurna, id ſtatim inuenias: Verùm ad faciliorem profectionum tam annuarum, quàm menſtruarũ calculationem addere voluimus etiam tabulam ſequentem dierum totius anni per ordinem, in qua facto ingreſſu ſub menſe, & die natiuitatis, vel reuolutionis, & iunctis illis diebus, quos inuenies correſpondentes diei natiuitatis, vel reuolutionis, cum diebus diſtantiæ profectionis reſultabit numerus dierum, qui deindè quæſitus in eadem tabula, aſsignabit tibi diem menſis, in quo accidet huiuſmodi profectio; vt in exemplo delineatæ natiuitatis, in qua habemus profectionem Solis ad Saturnum poſt dies Natiuitatis 233. & annos 4. Dies Natiuitatis eſt 26. Februarij anni communis, qui à Latere Tabellæ præbet dierum numerum à primo Ianuarij 57. quibus additis 233. profectionis conſurgent dies 290. quibus in Tabella reſpondet dies 17. Octobris, qua die 1639. 1651. 1663. 1675. 1687. &c. Sol proficiſcitur ad Saturnum.



Tabella Profectionum in genitura Excellentiſsimi Principis Columnæ.

☉ 13 38	☽ 11 51	Aſc. 10 37	M. C. 12 27	⊗ 8 50	Die 26. Febr. Hor. 7. m. 54. P. M.					
♓	♑	♎	♋	♌	1535	1547	1559	1571	1583	1595
♈	♒	♏	♌	♍	1536	1548	1560	1572	1584	1596
♉	♓	♐	♍	♎	1537	1549	1561	1573	1585	1597
♊	♈	♑	♎	♏	1538	1550	1562	1574	1586	1598
♋	♉	♒	♏	♐	1539	1551	1563	1575	1587	1599
♌	♊	♓	♐	♑	1540	1552	1564	1576	1588	1600
♍	♋	♈	♑	♒	1541	1553	1565	1577	1589	1601
♎	♌	♉	♒	♓	1542	1554	1566	1578	1590	1602
♏	♍	♊	♓	♈	1543	1555	1567	1579	1591	1603
♐	♎	♋	♈	♉	1544	1556	1568	1580	1592	1604
♑	♏	♌	♉	♊	1545	1557	1569	1581	1593	1605
♒	♐	♍	♊	♋	1546	1558	1570	1582	1594	1606

Tabula motus diurni Annuarum Profectionum expanſa ad ſingulos dies anni.

Di.	G	'	''	Di.	G	'	''	Di.	G	'	''	Di.	G	'	''
1	0	4	55	35	2	52	29	69	5	40	3	103	8	27	37
2	0	9	51	36	2	57	25	70	5	44	59	104	8	32	32
3	0	14	47	37	3	2	20	71	5	49	54	105	8	37	28
4	0	19	42	38	3	7	16	72	5	54	50	106	8	42	24
5	0	24	38	39	3	12	12	73	5	59	46	107	8	47	19
6	0	29	34	40	3	17	8	74	6	4	41	108	8	52	15
7	0	34	29	41	3	22	3	75	6	9	37	109	8	57	11
8	0	39	25	42	3	26	59	76	6	14	33	110	9	2	7
9	0	44	21	43	3	31	55	77	6	19	28	111	9	7	2
10	0	49	17	44	3	36	50	78	6	24	24	112	9	11	58
11	0	54	12	45	3	41	46	79	6	29	20	113	9	16	54
12	0	59	8	46	3	46	42	80	6	34	16	114	9	21	49
13	1	4	4	47	3	51	37	81	6	39	11	115	9	26	45
14	1	8	59	48	3	56	33	82	6	44	7	116	9	31	41
15	1	13	55	49	4	1	29	83	6	49	3	117	9	36	36
16	1	18	51	50	4	6	25	84	6	53	58	118	9	41	32
17	1	23	46	51	4	11	20	85	6	58	54	119	9	46	28
18	1	28	42	52	4	16	16	86	7	3	50	120	9	51	23
19	1	33	38	53	4	21	12	87	7	8	45	121	9	56	19
20	1	38	34	54	4	26	7	88	7	13	41	122	10	1	15
21	1	43	29	55	4	31	3	89	7	18	37	123	10	6	10
22	1	48	25	56	4	35	59	90	7	23	33	124	10	11	6
23	1	53	21	57	4	40	54	91	7	28	28	125	10	16	2
24	1	58	16	58	4	45	50	92	7	33	24	126	10	20	58
25	2	3	12	59	4	50	46	93	7	3	20	127	10	25	53
26	2	[illegible]	8	60	4	55	42	94	7	43	15	128	10	30	49
27	2	13	3	61	5	0	37	95	7	48	11	129	10	35	45
28	2	17	59	62	5	5	33	96	7	52	7	130	10	40	40
29	2	22	55	63	5	10	29	97	7	58	2	131	10	45	36
30	2	27	51	64	5	15	24	98	8	2	58	132	10	50	32
31	2	32	46	65	5	20	20	99	8	7	54	133	10	55	27
32	2	37	42	66	5	25	16	100	8	12	40	134	11	1	23
33	2	42	38	67	5	30	11	101	8	17	45	135	11	5	19
34	2	47	33	68	5	35	7	102	8	22	41	136	11	10	15

Tabulas motus diurni Profectionum Annuarum expanſa ad ſingulos dies anni.

Di.	G	'	''	Di.	G	'	''	Di.	G	'	''	Di.	G	'	''
137	11	15	10	171	14	2	44	205	16	50	18	239	19	37	52
138	11	20	6	172	14	7	40	206	16	55	13	240	19	42	47
139	11	25	2	173	14	12	35	207	17	0	9	241	19	47	43
140	11	29	57	174	14	17	31	208	17	5	5	242	19	52	39
141	11	34	53	175	14	22	27	209	17	10	1	243	19	57	34
142	11	39	49	176	14	27	23	210	17	14	56	244	20	2	30
143	11	44	44	177	14	32	18	211	17	19	52	245	20	7	26
144	11	49	40	178	14	37	14	212	17	24	48	246	20	12	21
145	11	54	36	179	14	42	10	213	17	29	43	247	20	17	17
146	11	59	32	[illegible]	14	47	5	214	17	34	39	248	20	22	13
147	12	4	27	181	14	52	1	215	17	39	35	249	20	27	9
148	12	9	23	182	14	56	57	216	17	44	30	250	20	32	4
149	12	14	[illegible]	183	15	1	52	217	17	49	26	251	20	37	0
150	12	19	[illegible]	184	15	6	48	218	17	54	22	[illegible]	20	41	56
151	12	24	10	185	15	11	44	219	17	59	18	253	20	46	51
152	12	29	6	186	15	16	40	220	18	4	13	254	20	51	47
153	12	34	1	187	15	21	35	221	18	9	9	255	20	56	43
154	12	38	57	188	15	26	31	222	18	14	5	256	21	1	38
155	12	43	53	189	15	31	27	223	18	19	0	257	21	6	34
156	12	48	49	190	15	36	22	224	18	23	56	258	21	11	30
157	12	53	44	191	15	41	18	225	18	28	52	259	21	16	25
158	12	58	40	192	15	46	14	226	18	33	[illegible]	260	21	21	21
159	13	3	36	193	15	51	9	227	18	38	43	261	21	26	17
160	13	8	31	194	15	56	5	228	18	43	39	262	21	31	13
161	13	13	27	195	16	1	1	229	18	48	35	263	21	36	8
162	13	18	23	196	16	5	56	230	18	53	30	264	21	41	4
163	13	23	18	197	16	10	52	231	18	58	26	265	21	46	0
164	13	28	14	198	16	15	48	232	19	3	22	266	21	50	55
165	13	33	10	199	16	20	44	233	19	8	17	267	21	55	51
166	13	38	6	200	16	25	39	234	19	13	13	268	22	0	47
167	13	43	1	201	16	30	35	235	19	18	9	269	22	5	42
168	13	47	57	202	16	35	31	236	19	23	4	270	22	10	38
169	13	52	53	203	16	40	26	237	19	28	0	271	22	15	34
170	13	57	48	204	16	45	22	238	19	32	56	272	22	20	30

Tabula motus diurni Profectionum Annuarum expanſa ad ſingulos dies anni.

Di.	G	′	″	Di.	G	′	″	Di.	G	′	″	Di.	G	′	″
273	22	25	25	297	24	23	42	321	26	21	59	345	28	20	16
274	22	20	22	298	24	28	38	322	26	26	54	346	28	25	11
275	22	35	17	299	24	33	33	323	26	31	50	347	28	30	7
276	22	40	12	300	24	38	29	324	26	36	46	348	28	35	3
277	22	45	8	301	24	43	25	325	26	41	42	349	28	39	58
278	22	50	4	302	24	48	20	326	26	46	37	350	28	44	54
279	22	54	59	303	24	53	16	327	26	51	33	351	28	49	50
280	22	59	55	304	24	58	12	328	26	56	29	352	28	54	45
281	23	4	51	305	25	3	8	329	27	1	24	353	28	59	41
282	23	9	46	306	25	8	3	330	27	6	[illegible]	354	29	4	37
283	23	14	42	307	25	12	59	331	27	11	16	355	29	9	23
284	23	19	38	308	25	17	55	332	27	16	[illegible]	356	29	14	28
285	23	24	34	309	25	22	50	333	27	21	7	[illegible]	29	19	24
286	23	29	[illegible]	310	25	27	46	334	27	26	3	358	29	24	20
287	23	34	25	311	25	32	42	335	27	30	59	359	29	29	15
288	23	39	21	312	25	37	37	336	27	35	54	360	29	34	11
289	23	44	16	313	25	42	33	337	27	40	50	361	29	39	7
290	23	49	12	314	25	27	29	338	27	45	46	362	29	44	2
291	23	54	8	315	25	52	25	339	27	50	41	363	29	48	58
292	23	19	[illegible]	316	25	57	20	340	27	55	37	364	29	53	54
293	24	3	59	317	26	2	16	341	28	0	33	365	29	58	49
294	24	8	55	318	26	7	12	342	28	5	28	366	30	3	45
295	24	13	51	319	26	12	7	343	28	10	24				
296	24	18	46	320	26	17	3	344	28	15	20				

Ta-

Tabula motus Profectionum Annuarum in Horis, & minutis.

H. M	i ii	ii iii	iii iiii	H. M	i ii	ii iii	iii iiii	M	ii	iii	iiii	M	ii	iii	iiii
1	0	12	19	16	3	17	8	31	6	21	56	46	9	26	44
2	0	23	38	17	3	29	27	32	6	34	15	47	9	39	3
3	0	36	57	18	3	41	46	33	6	46	34	48	9	51	23
4	0	49	17	19	3	54	5	34	6	58	53	49	10	3	42
5	1	1	36	20	4	6	25	35	7	11	12	50	10	16	1
6	1	13	55	21	4	18	44	36	7	23	32	51	10	28	20
7	1	26	14	22	4	31	3	37	7	35	51	52	10	40	40
8	1	38	34	23	4	43	22	38	7	48	10	53	10	53	0
9	1	50	53	24	4	55	42	39	8	0	29	54	11	5	19
10	2	3	12	25	5	8	1	40	8	12	49	55	11	17	38
11	2	15	31	26	5	20	20	41	8	25	8	56	11	29	58
12	2	27	51	27	5	32	39	42	8	37	27	57	11	42	17
13	2	40	10	28	5	44	58	43	8	49	46	58	11	54	36
14	2	52	29	29	5	57	18	44	9	2	6	59	12	6	55
15	3	4	48	30	6	9	37	45	9	14	25	60	12	19	15

Tabula Profectionum Menſurnarum.

S.	D.	H.	M.	S.
1	28	2	17	37
2	56	4	35	14
3	84	6	52	51
4	112	9	10	28
5	140	11	28	5
6	168	13	45	52
7	196	16	3	19
8	224	18	20	55
9	252	20	38	32
10	280	22	56	9
11	309	1	13	46
12	337	3	31	23
13	365	5	49	0

Tabulas motus diurni Profectionum Menſurnarum expanſa ad ſingulos dies anni.

Di.	S	G	l	Di.	S	G	l	Di.	S	G	l	Di.	S	G	l
1	0	1	4	35	1	7	22	69	2	13	40	103	3	19	58
2	0	2	8	36	1	8	26	70	2	14	44	104	3	21	3
3	0	3	12	37	1	9	30	71	2	15	48	105	3	22	7
4	0	4	16	38	1	10	34	72	2	16	52	106	3	23	11
5	0	5	20	39	1	11	38	73	2	17	56	107	3	24	15
6	0	6	24	40	1	12	42	74	2	19	1	108	3	25	19
7	0	7	28	41	1	13	46	75	2	20	5	109	3	26	23
8	0	8	32	42	1	14	50	76	2	21	9	110	3	27	27
9	0	9	36	43	1	15	54	77	2	22	13	111	3	28	31
10	0	10	40	44	1	16	58	78	2	23	17	112	3	29	35
11	0	11	44	45	1	18	3	79	2	24	21	113	4	0	39
12	0	12	48	46	1	19	7	80	2	25	25	114	4	1	43
13	0	13	52	47	1	20	11	81	2	26	29	115	4	2	47
14	0	14	56	48	1	21	15	82	2	27	33	116	4	3	51
15	0	16	1	49	1	22	19	83	2	28	37	117	4	4	55
16	0	17	5	50	1	23	23	84	2	29	41	118	4	5	59
17	0	18	9	51	1	24	27	85	3	0	45	119	4	7	4
18	0	19	13	52	1	25	31	86	3	1	49	120	4	8	8
19	0	20	17	53	1	26	35	87	3	2	53	121	4	9	12
20	0	21	21	54	1	27	39	88	3	3	57	122	4	10	16
21	0	22	25	55	1	28	43	89	3	5	2	123	4	11	20
22	0	23	29	56	1	29	47	90	3	6	6	124	4	12	24
23	0	24	33	57	2	0	51	91	3	7	10	125	4	13	28
24	0	25	37	58	2	1	55	92	3	8	14	126	4	14	32
25	0	26	41	59	2	2	59	93	3	9	18	127	4	15	36
26	0	27	45	60	2	4	4	94	3	10	22	128	4	16	40
27	0	28	49	61	2	5	8	95	3	11	26	129	4	17	44
28	0	29	53	62	2	6	12	96	3	12	30	130	4	18	48
29	1	0	57	63	2	7	16	97	3	13	34	131	4	19	52
30	1	2	2	64	2	8	20	98	3	14	38	132	4	20	56
31	1	3	6	65	2	9	24	99	3	15	42	133	4	22	1
32	1	4	10	66	2	10	28	100	3	16	46	134	4	23	5
33	1	5	14	67	2	11	32	101	3	17	50	135	4	24	9
34	1	6	18	68	2	12	36	102	3	18	54	136	4	25	13

Tabulas motus diurni Profectionum Menſurnarum expanſa ad ſingulos dies anni.

Di.	S	G	l	Di.	S	G	l	Di.	S	G	l	Di.	S	G	l
137	4	26	17	171	6	2	35	205	7	8	53	239	8	15	12
138	4	27	21	172	6	3	39	206	7	9	57	240	8	16	16
139	4	28	25	173	6	4	43	207	7	11	2	241	8	17	20
140	4	29	29	174	6	5	47	208	7	12	6	242	8	18	24
141	5	0	33	175	6	6	51	209	7	13	10	243	8	19	28
142	5	1	37	176	6	7	55	210	7	14	14	244	8	20	32
143	5	2	41	177	6	8	59	211	7	15	18	245	8	21	36
144	5	3	45	178	6	10	4	212	7	16	22	246	8	22	40
145	5	4	49	179	6	11	8	213	7	17	26	247	8	23	44
146	5	5	53	180	6	12	12	214	7	18	30	248	8	24	48
147	5	6	57	181	6	13	16	215	7	19	34	249	8	25	52
148	5	8	2	182	6	14	20	216	7	20	38	250	8	26	56
149	5	9	6	183	6	15	24	217	7	21	42	251	8	28	1
150	5	10	10	184	6	16	28	218	7	22	46	252	8	29	5
151	5	11	14	185	6	17	32	219	7	23	50	253	9	0	9
152	5	12	18	186	6	18	36	220	7	24	54	254	9	1	13
153	5	13	22	187	6	19	40	221	7	25	58	255	9	2	17
154	5	14	26	188	6	20	44	222	7	27	3	256	9	3	21
155	5	15	30	189	6	21	48	223	7	28	7	257	9	4	25
156	5	16	34	190	6	22	52	224	7	29	11	258	9	5	29
157	5	17	38	191	6	23	56	225	8	0	15	259	9	6	33
158	5	18	42	192	6	25	1	226	8	1	19	260	9	7	37
159	5	19	46	193	6	26	5	227	8	2	23	261	9	8	41
160	5	20	50	194	6	27	9	228	8	3	27	262	9	9	45
161	5	21	54	195	6	28	13	229	8	4	31	263	9	10	49
162	5	22	58	196	6	29	17	230	8	5	35	264	9	11	53
163	5	24	3	197	6	0	21	231	8	6	39	265	9	12	57
164	5	25	7	198	6	1	25	232	8	7	43	266	9	14	2
165	5	26	11	199	7	2	29	233	8	8	47	267	9	15	6
166	5	27	15	200	7	3	33	234	8	9	51	268	9	16	10
167	5	28	19	201	7	4	37	235	8	10	55	269	9	17	14
168	5	29	23	202	7	5	41	236	8	11	59	270	9	18	18
169	6	0	27	203	7	6	45	237	8	13	4	271	9	19	22
170	6	1	31	204	7	7	49	238	8	14	8	272	9	20	26

Tabula motus diurni Profectionum Menſurnarum expanſa ad ſingulos dies anni.

Di.	S	G	′	Di.	S	G	′	Di.	S	G	′	Di.	S	G	′
273	9	21	30	297	10	17	8	321	11	12	45	345	12	8	25
274	9	22	34	298	10	18	12	322	11	13	49	346	12	9	27
275	9	23	38	299	10	19	16	323	11	14	53	347	12	10	31
276	9	24	42	300	10	20	20	324	11	15	57	348	12	11	35
277	9	25	46	301	10	21	24	325	11	17	2	349	12	12	39
278	9	26	50	302	10	22	28	326	11	18	6	350	12	13	43
279	9	27	54	303	10	23	32	327	11	19	10	351	12	14	47
280	9	28	58	304	10	24	36	328	11	20	14	352	12	15	51
281	10	0	3	305	10	25	40	329	11	21	18	353	12	16	55
282	10	1	7	306	10	26	44	330	11	22	22	354	12	17	59
283	10	2	11	307	10	27	48	331	11	23	26	355	12	19	4
284	10	3	15	308	10	28	52	332	11	24	30	356	12	20	8
285	10	4	19	309	10	29	56	333	11	25	34	357	12	21	12
286	10	5	23	310	11	1	1	334	11	26	38	358	12	22	16
287	10	6	27	311	11	2	5	335	11	27	42	359	12	23	20
288	10	7	31	312	11	3	9	336	11	28	46	360	12	24	24
289	10	8	35	313	11	4	13	337	11	29	50	361	12	25	28
290	10	9	39	314	11	5	17	338	12	0	54	362	12	26	32
291	10	10	43	315	11	6	21	339	12	1	58	363	12	27	3
292	10	11	47	316	11	7	25	340	12	3	3	364	12	28	40
293	10	13	51	317	11	8	29	341	12	4	7	365	12	29	44
294	10	12	55	318	11	9	33	342	12	5	11	366	13	0	48
295	10	14	59	319	11	10	37	343	12	6	15				
296	10	16	4	320	11	11	41	344	12	7	19				

Tabula motus Profectionum Menſurnarum in Horis, & minutis.

H.	G	′	″	‴	H.	G	′	″	‴					
M	′	″	‴	⁗	M	′	″	‴	⁗	M	′	″	‴	⁗
1	0	2	40	10	21	0	56	3	33	41	1	49	26	54
2	0	5	20	20	22	c	58	43	43	42	1	52	7	4
3	0	8	0	30	23	1	1	23	53	43	1	54	47	14
4	0	10	40	40	24	1	4	4	4	44	1	57	27	24
5	0	13	20	51	25	1	6	44	14	45	2	0	7	34
6	0	16	1	1	26	1	9	24	24	46	2	2	47	44
7	0	18	41	11	27	1	12	4	34	47	2	5	27	54
8	0	21	21	21	28	1	14	44	44	48	2	8	8	4
9	0	24	1	31	29	1	17	24	54	49	2	10	48	14
10	0	26	41	41	30	1	20	5	4	50	2	13	28	24
11	0	29	21	52	31	1	22	45	14	51	2	16	8	34
12	0	32	2	2	32	1	25	25	24	52	2	18	48	44
13	0	34	42	12	33	1	28	5	34	53	2	21	28	54
14	0	37	22	22	34	1	30	45	44	54	2	24	9	4
15	0	40	2	32	35	1	33	25	54	55	2	26	49	14
16	0	42	42	42	36	1	36	6	4	56	2	29	29	24
17	0	45	22	53	37	1	38	46	14	57	2	32	9	34
18	0	48	3	3	38	1	41	26	24	58	2	34	49	44
19	0	50	43	13	39	1	44	6	34	59	2	37	29	54
20	0	53	23	23	40	1	46	46	44	60	2	40	10	4

Tabula Profectionum DIVRNARVM.

S.	D.	H.	′	″
1	2	3	52	8
2	4	7	44	15
3	6	11	36	23
4	8	15	28	30
5	10	19	20	37
6	12	23	12	45
7	15	3	4	52
8	17	6	57	0
9	19	10	49	7
10	21	14	41	15
11	23	18	33	23
12	25	22	25	30
13	28	2	17	36

Tabula Diurni motus Profectionum Diurnarum.

Di	Sig	G	'	''
1	0	13	52	52
2	0	27	45	45
3	1	11	38	37
4	1	25	31	29
5	2	9	24	21
6	2	13	17	14
7	3	7	10	6
8	3	21	2	58
9	4	4	55	51
10	4	18	48	43
11	5	2	41	35
12	5	16	34	28
13	6	0	27	20
14	6	14	20	12
15	6	28	13	4
16	7	12	5	57
17	7	25	58	49
18	8	9	51	41
19	8	23	44	34
20	9	7	37	26
21	9	21	30	18
22	10	5	23	11
23	10	19	16	3
24	11	3	8	55
25	11	17	1	47
26	12	0	54	40
27	12	14	47	32
28	12	28	40	24

Tabula motus Profectionum Diurnarum in Horis & Minutis.

H. / M	G / '	' / ''	'' / '''	M	'	''	'''
1	0	34	42	31	17	55	46
2	1	9	24	32	18	30	28
3	1	44	7	33	19	5	10
4	2	18	49	34	19	39	52
5	2	53	31	35	20	14	34
6	3	28	13	36	20	49	16
7	4	2	55	37	21	23	58
8	4	37	37	38	21	58	40
9	5	12	20	39	22	33	22
10	5	27	2	40	23	8	4
11	6	21	44	41	23	42	46
12	6	56	26	42	24	17	28
13	7	31	8	43	24	52	10
14	8	5	51	44	25	26	52
15	8	40	33	45	26	1	34
16	9	15	15	46	26	36	16
17	9	49	57	47	27	10	58
18	10	24	39	48	27	45	40
19	10	59	21	49	28	20	22
20	11	34	4	50	28	55	4
21	12	8	46	51	29	29	46
22	12	43	28	52	30	4	28
23	13	18	10	53	30	39	10
24	13	52	52	54	31	13	52
25	14	27	34	55	31	48	34
26	15	2	16	56	32	23	16
27	15	36	58	57	32	57	58
28	16	11	40	58	33	32	40
29	16	46	22	59	34	7	22
30	17	21	4	60	34	42	4

Tabula Dierum Totius Anni tam Communis, quàm Biſſextilis.

Commun.	Biſſext.	Ianuar.	Februar.	Martius.	Aprilis.	Maius.	Iunius.	Iulius.	Auguſt.	Septemb.	October.	Nouem.	Decemb.
1		1	32	60	91	121	152	182	213	244	274	305	335
2	1	2	33	61	92	122	153	183	214	245	275	306	336
3	2	3	34	62	93	123	154	184	215	246	276	307	337
4	3	4	35	63	94	124	155	185	216	247	277	308	338
5	4	5	36	64	95	125	156	186	217	248	278	309	339
6	5	6	37	65	96	126	157	187	218	249	279	310	340
7	6	7	38	66	97	127	158	188	219	250	280	311	341
8	7	8	39	67	98	128	159	189	220	251	281	312	342
9	8	9	40	68	99	129	160	190	221	252	282	313	343
10	9	10	41	69	100	130	161	191	222	253	283	314	344
11	10	11	42	70	101	131	162	192	223	254	284	315	345
12	11	12	43	71	102	132	163	193	224	255	285	316	346
13	12	13	44	72	103	133	164	194	225	256	286	317	347
14	13	14	45	73	104	134	165	195	226	257	287	318	348
15	14	15	46	74	105	135	166	196	227	258	288	319	349
16	15	16	47	75	106	136	167	197	228	259	289	320	350
17	16	17	48	76	107	137	168	198	229	260	290	321	351
18	17	18	49	77	108	138	169	199	230	261	291	322	352
19	18	19	50	78	109	139	170	200	231	262	292	323	353
20	19	20	51	79	110	140	171	201	232	263	293	324	354
21	20	21	52	80	111	141	172	202	233	264	294	325	355
22	21	22	53	81	112	142	173	203	234	265	295	326	356
23	22	23	54	82	113	143	174	204	235	266	296	327	357
24	23	24	55	83	114	144	175	205	236	267	297	328	358
25	24	25	56	84	115	145	176	206	237	268	298	329	359
26	25	26	57	85	116	146	177	207	238	269	299	330	360
27	26	27	58	86	117	147	178	208	239	270	300	331	361
28	27	28	59	87	118	148	179	209	240	271	301	332	362
29	28	29	60	88	119	149	180	210	241	272	302	333	363
30	29	30		89	120	150	181	211	242	273	303	334	364
31	30	31		90	121	151	182	212	243	274	304	335	365
	31			91		152		213	244		305		366

DE ANNORUM REVOLUTIONIBUS. Cap. XIX.

Annorum Reuolutio, ſeù ingreſſus in Genituris eſt reditus Solis ad idem ferme punctum, in quo erat tempore Natiuitatis, quod Temporis momentũ abſque notabili errore inuenitur, ſi pro ſingulis annis addantur h. 5. m. 49. horis, & tempori poſito in figura Geniturae. Huc adiecimus Reuolutionum Tabellam, cuius vſus hic eſt. Cum annis tranſactis à Natiuitate ſumptis à latere, è directo ſub Columna ſigni in quo Sol fuerit conſtitutus tempore Natiuitatis ſumendae ſunt horae cum minutis, quae additae horis P. M. poſitis in figura Natiuitatis conſtituẽt tempus, quo figura Reuolutionis erit erigenda. Sciendum tamen pro numero graduum Solis ſumendam eſſe partem proportionalem de differentia minutorum, quae fuerit inter ſignum repertum, & ſubſequens collaterale; quod à multis ſpretum aliquando alicuius euadit conſiderationis.

Haec Tabella eſt conſtructa ope anni Tropici, qui proximè eſt dierum 365. h. 5. min. 49. cum aliquibus fractionibus: verùm cum hic annus non ſit perpetuò aequalis, ſi exactiſſimè quis cupiet Reuolutionem conſtruere hoc pacto agendum.

Ex Ephemeridibus, aut Tabulis tempore, quo eſt Reuolutio erigenda conſpiciendum in Meridie, quae ſit differentia inter locum Solis hunc, & poſitum in Figura Natiuitatis; quemadmodùm etiam motus diurnus tunc temporis Solis annotandus. Per auream poſtea Regulam Trium ſic operandum. Si minuta, & ſecunda motus Solis diurni dant horas 24. quid tribuet differentia illa, quae intercedit inter locum Solis poſitum in Natiuitate, & repertum in Meridie in Ephemeridibus, nam in quotiente proueniet tempus exactiſſimum, quo Reuolutio erit conſtruenda.

Praxis haec eſt. Horae 24. traducendae ſunt in minuta, quae conſurgent 1440. ſic motus diurnus Solis in ſecunda, quemadmodum etiam in ſecunda differentia dicta; & operandum; vnico exemplo res fiet clarior.

Sit Genitura in cuius figura Sol ſit in grad. 16. m. 12. ſecund. 10. ſigni Arietis: in Meridie temporis quo eſt figura Reuolutionis conſtruenda ſit idem Sol in gr. 15. min. 47. ſec. 4. eiuſdem ſigni ♈. Differentia inter haec loca eſt min. 25. ſec. 6. In Meridie diei ſubſequentis Sol ſit in gr. 16. m. 45. ſec. 54. motus diurnus, & differentia inter vnum, & alterum Meridiem erit gr. 0. m. 58. ſec. 50.

Horae 24. reductae ad min. conſtituent 1440.

Motus diurnus m. 54. ſec. 50. erunt ſecunda 3330.

Differentia inter locum Natiuitatis, & Ephemeridis min. 25. 6. erunt ſecunda 1506. Tunc.

Si motus diurnus ſecund. 3530. dat horas 24. m. 1440. pro ſecundis 1506. differentiae competent minuta 614. cum tertia parte vnius minuti: quae reducta ad horas erunt h. 10. m. 14. cum tertia parte; nam multiplicato numero tertio 1506. per ſecundum 1440. conſurgent 2168648. quae diuiſa per primum 3530. afferent in quotiente 614. cum fragmentis, quae erunt tertia ferè pars vnius minuti; Minuta 614. ſunt horae 10. m. 14.

Abſque tediosa hac operatione multiplicationis, & diuiſionis idem colligitur facili via ex Tabulis proportionalis horarij motus Solis in Ephemeridibus; nam reperto motu diurno Solis in ſummitate tabulae, & in eadem Columna minutis diffe-

differentiæ ſupradictæ à latere emergent horæ, & minuta vt ſupra.

In noſtro exemplo reperto motu diurno Solis m. 18. ſec. 50. cum differentia ſit min. 25. ſec. 6. nec reperiatur in columna hic numerus præciſè, vtendum eſt pluri ingreſſu; hoc pacto vt vides.

	H.	M.	S.
E directo m. 24. ſecun. 31. à latere reſpondent	10	9	0
E directo ſec. 24. tert. 31. reſpondent	0	10	0
E directo ſec. 9. tert. 48. reſpondent	0	4	0
E directo tert. 49. reſpondent	0	0	10
	10	14	10

m	24	ſec.	31	tert.	0
m	0	ſec.	24	tert.	31
m	0	ſec.	9	tert.	48
m	0	ſec.	0	tert.	49
	25		6		8

Ex Reuolutionibus annorum, & tranſitibus quemadmodum ex Directionibus, atquè Profectionibus accidentia Natis contingentia prædicuntur à Profeſſoribus; illorum verò præciſa tempora ex Reuolutionibus ſi optimè, quæ neceſſaria ſunt attendantur.

Antiquiores qui ad diem euentus prædicebant hunc ordinem ſeruabant. Anno quo directio fauſta, vel improſpera ſuccedebat in aliquo ſignificato, figuram erigebant Reuolutionis, more ſupradicto, dictam annuam; ſingulis deinde menſibus menſtruas erigebant tempore quo Luna redierat ad idem punctum, in quo conſtituebatur tempore annuæ Reuolutionis; eaſquè pro numero menſium duodecim. Videbant poſtea quæ ex duodecim eſſet peior aut melior pro ſignificatu Directionis; ac eo menſe alias figuras conſtruebant in oppoſitione, ac quadraturis conreſpondentibus loco Lunæ in Reuolutione. Ex motibus deinde diurnis tunc temporis Lunæ, prout maleficis, vel beneficis occurriſſet prognoſtica afferebant, præcipuè autem tempore melioris, vel deterioris figuræ oppoſitionis, vel quadraturæ. De quibus copioſe alibi diſſeruimus.

TRANSITVS porrò Planetarum reales per loca Significatorum in Radice peculiariùs effectus excitant à Directione, & Reuolutione latiùs indicatos, pro ipſorum Significatorum, & Tranſeuntium planetarum natura: Quorum quidem Tranſitum tempora ex ephemeridibus eliciuntur: In planetis autem reliquis per diem vnum ante, & poſt Tranſitum, in Luna verò per tres horas eodem modo, actio vigere vulgò cenſetur.

Tabula Reuolutionum.

Ann.	♈ H	♈ l	♉ H	♉ l	♊ H	♊ l	♋ H	♋ l	♌ H	♌ l	♍ H	♍ l
1	5	48	5	48	5	48	5	48	5	48	5	49
2	11	37	11	36	11	36	11	36	11	37	11	37
3	17	26	17	25	17	24	17	24	17	25	17	26
4	23	14	23	13	23	12	23	12	23	13	23	14
5	5	3	5	1	5	0	5	0	5	1	5	3
6	10	51	10	49	10	48	10	48	10	50	10	52
7	16	40	16	37	16	36	16	36	16	38	16	40
8	22	28	22	26	22	24	22	24	22	26	22	29
9	4	17	4	14	4	12	4	13	4	15	4	17
10	10	5	10	2	12	0	10	1	10	3	10	6
11	15	54	15	50	15	48	15	49	15	51	15	55
12	21	42	21	38	21	37	21	37	21	39	21	43
13	3	31	3	27	3	25	3	25	3	27	3	32
14	9	19	9	15	9	13	9	13	9	16	9	20
15	15	8	15	3	15	1	15	1	15	4	15	9
16	20	56	20	51	20	49	20	49	20	52	20	58
17	2	45	2	40	2	37	2	37	2	40	2	46
18	8	33	8	28	8	25	8	25	8	29	8	35
19	14	22	14	16	14	13	14	13	14	17	14	24
20	20	10	20	4	20	1	20	1	20	5	20	12
21	1	59	1	52	1	49	1	49	1	53	2	1
22	7	47	7	40	7	37	7	38	7	41	7	49
23	13	36	13	29	13	25	13	26	13	30	13	38
24	19	24	19	17	19	13	19	14	19	18	19	26
25	1	13	1	5	1	1	1	2	1	6	1	15
26	7	1	6	53	6	49	6	50	6	54	7	3
27	12	50	12	42	12	37	12	38	12	43	12	52
28	18	39	18	30	18	25	18	26	18	31	18	41
29	0	27	0	18	0	13	0	14	0	19	0	29
30	6	16	6	6	6	1	6	2	6	7	6	18
40	16	31	16	9	16	2	16	3	16	10	16	25
50	2	26	2	11	2	2	2	3	2	13	2	31
60	12	31	12	13	12	3	12	4	12	15	12	37
70	22	36	22	15	22	3	22	5	22	18	22	53
80	8	41	8	17	8	4	8	5	8	20	8	49
90	18	47	18	9	18	4	18	6	18	23	18	55
100	4	52	4	22	4	5	4	7	4	26	5	2

Tabula Reuolutionum.

Ann.	♎ H	♎ '	♏ H	♏ '	♐ H	♐ '	♑ H	♑ '	♒ H	♒ '	♓ H	♓ '
1	5	49	5	49	5	49	5	49	5	49	5	49
2	11	38	11	38	11	38	11	38	11	38	11	38
3	17	27	17	28	17	28	17	28	17	28	17	27
4	23	16	23	17	23	18	23	17	23	17	23	15
5	5	5	5	6	5	0	5	7	5	6	5	4
6	10	54	10	56	10	57	10	57	10	55	10	53
7	16	43	16	45	16	46	16	46	16	44	16	42
8	22	32	22	34	22	36	22	36	22	34	22	31
9	4	21	4	23	4	25	4	25	4	23	4	20
10	10	10	10	13	10	14	10	14	10	12	10	9
11	15	59	16	2	16	4	16	4	16	1	15	58
12	21	48	21	51	21	53	21	53	21	51	21	48
13	3	37	3	41	3	43	3	43	3	40	3	36
14	9	25	9	30	9	32	9	32	9	29	9	25
15	15	14	15	19	15	22	15	22	15	18	15	13
16	21	3	21	8	21	11	21	11	21	8	21	2
17	2	52	2	58	3	1	3	1	2	57	2	51
18	8	41	8	47	8	50	8	50	8	46	8	40
19	14	30	14	36	14	40	14	40	14	35	14	29
20	20	19	20	26	20	29	20	29	20	24	20	18
21	2	8	2	15	2	19	2	19	2	13	2	7
22	7	57	8	4	8	8	8	8	8	3	7	56
23	13	46	13	54	13	57	13	58	13	52	13	45
24	19	55	19	43	19	47	19	47	19	41	19	33
25	1	24	1	32	1	36	1	36	1	31	1	22
26	7	13	7	22	7	25	7	25	7	20	7	11
27	13	2	13	11	13	15	13	15	13	9	13	0
28	18	51	19	0	19	4	19	4	18	59	18	40
29	0	40	0	49	0	53	0	54	0	48	0	38
30	6	29	6	38	6	43	6	43	6	37	6	27
40	16	39	16	51	16	58	16	58	16	49	16	36
50	2	48	3	4	3	12	3	12	3	1	2	45
60	12	58	13	17	13	25	13	27	13	14	12	54
70	23	8	23	30	23	41	23	41	23	26	23	3
80	9	17	9	43	9	56	9	56	9	38	9	12
90	19	27	19	55	29	10	20	10	19	51	19	21
100	5	36	6	8	6	25	6	25	6	4	5	30

DE CONSTRVENDA COE-leſti Figura. Cap. XX.

DElineato Cœli Themate duodecim Domiciliorum, quo orbicularis tota Cœleſtis regio in plano circumſcribitur, reductoquè geniture, ſeu alterius Thematis tempore ſub quouis Horologio ſumpto, ſiue Italico, ſiue alio ad horas Poſt Meridiem, ingredienda eſt ſequens Tabella Domorum cum gradu Eleuationis Poli tuæ Regionis, & è directo occurrent tibi duo numeri Polares, alter deſeruiens Domui Vndecimæ Tertiæ, ac Nonæ, & Quintæ oppoſitis; alter Duodecimæ, Secundæ, Octauæ, & Sextæ, cum ex obliquis Aſcenſionibus ſumptis ſub dictis Poli Eleuationibus harum domorum principia conſtituantur; vt exempli gratia e directo gradus 42. Eleuationis Poli, numerus Polaris deſeruiens domui Vndecimæ, & Tertiæ eſt Pol. gr. 24. m. 14. numerus deſeruiens Duodecimæ, & Secundæ erit gr. Pol. 37. m. 57. Figura hoc pacto poſtmodum conſtruitur, ſiue inſcribuntur puncta Æquatoris, & Zodiaci, quæ in initijs cuiuſcunque domus dato Tēporis momento exiſtunt. Reperiendus eſt locus Solis ex Ephemeridibus, vel ex Tabulis, & eius Recta Aſcenſio, cui addendi ſunt gradus æquatoris exorti à Meridie vſque ad horam ſub qua quæris conſtruere figuram, quod citò aſſequeris ſi pro qualibet hora poſt Meridiem tribueris gradus quindecim Æquinoctialis, & pro ſingulis quatuor horæ minutis, gradum vnum. Vel vteris Tabula ſubiecta conuerſionis Horarum in gradus, &c. Æquatoris, & aggregatum erit recta Aſcēſio Medij Cœli, cuius arcus Eclipticæ indagandus eſt ex cap. 6. Huic Aſcenſioni medij Cęli ſi addamus gradus 30. habebimus Aſcenſionem obliquam domus Vndecimæ, arcum vero Zodiaci correſpondentem eliciemus ex Tabula Aſcenſionū obliquarum, cum Poli Eleuatione conuenienti Domui Vndecimæ, & Tertiæ: addendo Aſcenſioni obliquæ domus Vndecimæ grad. 30. conſtituetur Aſcenſio obliqua domus Duodecimæ, & gradui Zodiaci conueniens eruetur ex Tabula Aſcēſionum obliq. cum numero polari domus duodecimæ, & ſecundæ. ſi obliquæ Aſcenſioni duodecimæ addantur etiam gr. 30. aggregatum erit Aſcenſio obliqua domus Primæ, & Horoſcopi cuius gradus ſigni conueniens inueniendus eſt in Tabula Aſcenſionum obliquarum ſub Eleuatione Poli tuæ Regionis; adiectis gradibus 30. obliquæ Aſcenſioni Aſcendentis reſultabit Aſcenſio obliqua Secundæ domus, quære igitur in Tabula conuenienti Aſcenſ. obliq. gradum Eclipticæ cōreſpondentem, & habebis ſecundam domum. Additis gradib. 30. Aſcenſioni obliquæ domus ſecundæ, aggregatum erit Aſcenſio obliqua domus Tertiæ, cuius arcus Zodiaci indagabitur ex Tabula Aſcenſ. obliq. Poli conuenientis domui vndecimæ, & tertiæ; & ſic conſtructis ſex Cœli domibus, reliquæ ſex enoteſcent cū accomodandæ ſint cum ſignis, & gradibus oppoſitis; hinc patet Cæli domus conſtrui per additionem continuam grad. 30. Aſcenſioni rectæ Medij Cœli. Sit pro exemplo genitura Excellentiſſimi Principis prædicta die 26. Februarij hor. 7. m. 54. P. M. ſub Eleuat. Poli gr. 41. m. 50. nunc autem gr. 42. completi.

In Tabella Domorum e directo Pol. gr. 42. reperies numerum polarem pro domo vndecima, & tertia gradus 24. m. 10. pro duodecima autem, & ſecunda gradus 37. m. 57. Eleuationis Poli: ſine notabili ergo errore principia domus vndecimæ, & tertiæ eliciemus ex Tabulis Aſcenſionum obliquarum ſub Eleuatione Poli

gr.

gr. 24. & principia domus duodecimæ, & ſecundæ, ex Tabulis Pol. gr. 38. Nunc Aſcenſio recta Solis, qui reperitur in gr. 13. m. 38. ♓ eſt graduum 344. m. 56. in natiuitate Excellentiſsimi Principis horæ Poſt Meridiem ſunt 7. m. 54. ſecund. 24. quæ conuerſæ in gradus æquatoris dando vnicuique horæ gradus quindecim, & ſingulis quatuor minutis gradum vnum, vel in Tabula infrapoſita inuenta conſtituent gr. 118. m. 36. qui additi Aſcenſioni Rectæ Solis efficient gr. 463. m. 32. & ablato integro circulo graduum 360. remanebunt gr. 103. m. 32. & hæc erit Recta Aſcenſio Medij Cæli, cui per cap. 6. correſpondent in Tabula Aſcenſionum Rectarum gr. 12. m. 27. ♋. Si rectæ Aſcenſioni huic M. C. grad. 103. m. 32. addantur gradus 30. aggregatum erit graduum 133. m. 32. Aſcenſionis videlicet obliquæ domus vndecimæ, cui in Tabula Aſcenſ. obliq. competenti Polo vndecimæ domus, & tertiæ nempè Pol. 24. correſpondent gr. 18. m. 9. ♌. Si Aſcenſioni obliquæ vndecimæ addantur grad. 30. prodibit Aſcenſio obliqua domus duodecimæ grad. 163. m. 32. quibus in Tabula Aſcenſ. obliq. Poli gr. 38. conreſpondent gr. 16. m. 36. ♍; ſi addamus Aſcenſioni obliquæ duodecimæ etiam gr. 30. conſurget gr. 193. m. 32. pro prima domo ſiue Aſcendente, & in Tabula Aſcenſionum obliquarum ſub Eleuatione Poli gr. 41. m. 50. inueniemus conreſpondere gr. 10. m. 37. ♎ ſi etiam 30. gr. addantur Aſcenſioni obliquæ Aſcendentis conſtituetur obliqua Aſcenſio domus ſecundæ gr. 223. m. 32. & in Tabula Pol. gr. 38. conreſpondet gr. 5. min. 12. ♏. Si demum obliquæ Aſcenſioni domus ſecundæ addantur grad. 30. reſultabit Aſcenſio obliqua domus. Tertiæ grad. 253. m. 32. quibus in Tabula Aſcenſionum obliquarum ſub Eleuatione Pol. grad. 24. conreſpondere conſpicimus grad. 5. min. 29. ♐ & ſic habes ſex domus conſtructas cum gradibus, & minutis ſigni Zodiaci: reliquæ domus ſex conſtruendæ ſunt cum oppoſitis gradibus hoc modo; Domus Quarta, quæ opponitur Medio Cæli conſtituetur cum gr. 12. m. 27. ♑. In Domo Quinta oppoſita Vndecimæ inſcribentur gr. 18. min. 9. ♒. In Domo Sexta oppoſita duodecimæ collocabimus gr. 16. m. 36. ♓. In Septima, quæ opponitur Aſcendenti ponemus gr. 10. m. 37. ♈. In Octaua oppoſita ſecundæ collocabuntur gr. 5. m. 12. ♉. In Nona demum oppoſita tertiæ domui conſtituetur gr. 5. m. 29. ♊ & conſtructam habebis figuram exquiſitiſsimè, & abſque ſenſibili errore.

Si verò alicui libuerit initia horum domiciliorum fabricare ſub Eleuationibus Poli ad gradus, & minuta vt v.g. in noſtro exemplo pro conſtructione domus vndecimæ & tertiæ ſub Poli gr. 37. min. 57. tunc capienda eſt pars proportionalis & operandum vt diximus cap. Septimo ad quem locum remittimus Aſtrophilum.

Tabula Conuerſionis Horarum, & Scrupulorum in Gradus & ſcrupula Æquatoris huc adiecta eſt, vt quilibet promptiſsimè hoc negotium abſoluat; cuius vſus eſt vt in margine columnæ primæ reperiantur Horæ datæ, ſiue in margine ſecundæ, & tertiæ columnæ Horarum minuta ſiue ſcrupula prima, vel ſecunda, vel tertia data, nam in areola proxima dextrorſum habebuntur vbique quæſiti gradus, vel ſcrupula Æquatoris correſpondentia, reſpectiuè prout tituli indicabunt, colligenda in vnam ſummam ſi datæ ſimul ſint Horæ, & ſcrupula, vel ſcrupula plurium ſpecierum. In ſuperiori exemplo datæ ſunt Horæ 7. m. 54. ſec. 24. Quærendus eſt arcus Æquatoris illi reſpondens. In prima columna cum Horis 7. inuenio gradus 105. Æquatoris; in reliquis columnis cum minutis 54. inuenio gr. 13. m. 30. Æquatoris; cum ſecundis Horæ 24. inuenio minuta 6. Æquatoris, quæ omnia

in vnam ſummam collecta efficiunt gr. 118. m. 36. Æquatoris quæſita, omninò vt ſupra.

Tabulam etiam reciprocam Conuerſionis nimirùm Graduum, & Scrupulorum Æquatoris in Horas, & earum partes in ſtudioſorum commodum ſubnectere libuit, in qua modus procedendi non erit abſimilis præcedenti; ſi in limbo Columnæ opportunæ cum titulo ſuo, & vnico, vel multiplici ingreſſu inueniantur partes Æquatoris; nam immediatè e regione dextrorſum habebuntur partes Temporis reſpondentes (cum titulis ſupra e directo datorum poſitis) in vnam ſummã colligendæ, ſi multiplex fuerit ingreſſus. Vt exempli gratia dati ſint grad. 118. & m. 36. Æquatoris, vt quærantur Horæ, & reliquæ partes Temporis reſpondentes: cum Æquatoris gr. 110. inuenio Horas 7. m. 20. cum gr. 8. inuenio min. 32. Horæ; cum minutis 36. Æquatoris inuenio minuta 2. ſecunda 24. Temporis, quæ ſimul collecta euadunt Horæ 7. m. 54. ſec. 24. ad vnguem, vt prius.

Rurſus quoad Tabulam Domorum, vt appareat diſtributionem domorum rationi, & ratiocinio triangulorum eſſe congruentem (alijs vijs neglectis Ptolomei, Campani, Gazuli.) Libuit hic inſerere ordinem, quo eadem Tabella constructa eſt; qui hic eſt ad quamlibet Poli Borealis Eleuationem.

Sicut rad. ad ſinum diſtantiæ a M. C. ita tangens gr. Eleuationis Poli ad tangentem gr. Circuli poſitionis. exempla.

Quæratur Circulus poſitionis domus XI. Venetijs cuius Poli alt. eſt gr. 45.

Domus XI. diſtantiæ à M. C. gr. 30. cuius ſinus 50000. Tangẽs gr. 45. eſt 100000. tunc.

Sicut rad. 100000. ad 50000. ita tangens 100000. ad 50000. quibus in Tabella tangens reſpondet gr. 26. m. 34. pro Circulo poſitionis domus XI. 3.

Si quæratur Circulus idem domus XII. quæ diſtat a M. C. grad. 60. cuius ſinus eſt 86603. tunc.

Sicut 100000. ad 86603. in tangens 100000. ad 86603. quibus reſpondet pro Circulo poſitionis domus XII. gr. 40. m. 54.

Quæratur Circulus poſitionis Pariſijs & Pol. gr. 48. domus XI. cuius ſinus diſtantiæ gr. 30. eſt 50000. Tangens gr. 48. eſt 111061. tunc.

Sicut 100000. ad 50008. ita 111061. ad 55530. quibus in Tabella tang. reſpondet gr. 29. m. 2. cum aliquibus ſecundis pro Circulo dicto domus 12. & 3.

Si quæratur Circulus domus XII. & 2. quæ diſtat à M. C. grad. 60. cuius domus 86603. tunc.

Sicut 100000. ad 86603. ita 111061. ad 95182. quibus reſpondet gr. 43. m. 35.

Tabula Conuerſionis Horarum, & Scrupulorum In Gradus, & Scrupula Æquatoris.

Horæ	Æquatoris Grad.	Hor. M / ″ / ‴	Æqua. G / ′ / ″	Æqua. ′ / ″ / ‴	Hor. M / ′ / ″	Æqua. G / ′ / ″	Æqua. ′ / ″ / ‴
1	15	1	0	15	31	7	45
2	30	2	0	30	32	8	0
3	45	3	0	45	33	8	15
4	60	4	1	0	34	8	30
5	75	5	1	15	35	8	45
6	90	6	1	30	36	9	0
7	105	7	1	45	37	9	15
8	120	8	2	0	38	9	30
9	135	9	2	15	39	9	45
10	150	10	2	30	40	10	0
11	165	11	2	45	41	10	15
12	180	12	3	[illegible]	42	10	30
13	195	13	3	15	43	10	45
14	210	14	3	30	44	11	0
15	225	15	3	45	45	11	15
16	240	16	4	0	46	11	30
17	255	17	4	15	47	11	45
18	270	18	4	30	48	12	0
19	285	19	4	45	49	12	15
20	300	20	5	0	50	12	30
21	315	21	5	15	51	12	45
22	330	22	5	30	52	13	0
23	345	23	5	45	53	13	15
24	360	24	6	0	54	13	30
		25	6	15	55	13	45
		26	6	30	56	14	0
		27	6	45	57	14	15
		28	7	0	58	14	30
		29	7	15	59	14	45
		30	7	30	60	15	0

Tabula Conuerſionis Graduum, & Scrupulorum Æquatoris In Horas, & Scrupula Horarum.

Æqua.	Temp.		Æqua.	Temp.		Æqua.	Temp.	
G	H	I	G	H	I	G	H	I
I	I	II	I	I	II	I	I	II
II	II	III	II	II	III	II	II	III
1	0	4	31	2	4	70	4	40
2	0	8	32	2	8	80	5	20
3	0	12	33	2	12	90	6	0
4	0	16	34	2	16	100	6	40
5	0	20	35	2	20	110	7	20
6	0	24	36	2	24	120	8	0
7	0	28	37	2	28	130	8	40
8	0	32	38	2	32	140	9	20
9	0	36	39	2	36	150	10	0
10	0	40	40	2	40	160	10	40
11	0	44	41	2	44	170	11	20
12	0	48	42	2	48	180	12	0
13	0	52	43	2	52	190	12	40
14	0	56	44	2	56	200	13	20
15	1	0	45	3	0	210	14	0
16	1	4	46	3	4	220	14	40
17	1	8	47	3	8	230	15	20
18	1	12	48	3	12	240	16	0
19	1	16	49	3	16	250	16	40
20	1	20	50	3	20	260	17	20
21	1	24	51	3	24	270	18	0
22	1	28	52	3	28	280	18	40
23	1	32	53	3	32	290	19	20
24	1	36	54	3	36	300	20	0
25	1	40	55	3	40	310	20	40
26	1	44	56	3	44	320	21	20
27	1	48	57	3	48	330	22	0
28	1	52	58	3	52	340	22	40
29	1	56	59	3	56	350	23	20
30	2	0	60	4	0	360	24	0

TABVLA DOMORVM.

Latitud.	Num. Polaris: Vndec Tertiæ		Duod. Secun.	
G	G	M	G	M
1	0	29	0	51
2	0	59	1	43
3	1	29	2	35
4	1	59	3	27
5	2	29	4	19
6	3	0	5	11
7	3	31	6	4
8	4	2	6	57
9	4	32	7	49
10	5	3	8	41
11	5	34	9	33
12	6	5	10	26
13	6	36	11	18
14	7	7	12	11
15	7	38	13	4
16	8	9	13	57
17	8	41	14	50
18	9	13	15	43
19	9	45	16	36
20	10	18	17	30
21	10	51	18	23
22	11	25	19	17
23	11	58	20	11
24	12	32	21	5
25	13	7	21	59
26	13	42	22	53
Region.	Nonæ Quint.		Octau. Sextæ.	

Latitud.	Num. Polaris: Vnde. Tert.		Duod. Secun.	
G	G	M	G	M
27	14	18	23	48
28	14	54	24	43
29	15	30	25	38
30	16	7	26	33
31	16	44	27	29
32	17	21	28	25
33	17	59	29	21
34	18	38	30	17
35	19	18	31	14
36	19	58	32	11
37	20	39	33	8
38	21	20	34	5
39	22	2	35	2
40	22	45	36	0
41	23	29	36	58
42	24	14	37	57
43	25	0	38	56
44	25	47	39	55
45	26	34	40	54
46	27	22	41	53
47	28	11	42	53
48	29	2	43	35
49	29	54	44	54
50	30	47	45	55
51	31	41	46	56
52	32	37	47	57
Region.	Nonæ Quint.		Octau. Sextæ.	

Latitud.	Num. Polaris. Vnde. Tert.		Duod. Secun.	
G	G	M	G	M
53	33	34	48	59
54	34	32	50	1
55	35	32	51	3
56	36	33	52	5
57	37	35	53	8
58	38	39	54	11
59	39	45	55	14
60	40	53	56	18
61	42	3	57	23
62	43	14	58	25
63	44	28	59	33
64	45	42	60	38
65	46	59	61	43
66	48	13	62	48
67	49	40	63	54
68	51	4	65	0
69	52	29	66	6
70	53	56	67	12
71	55	25	68	19
72	56	59	69	26
73	58	34	70	37
74	60	10	71	40
75	61	49	72	45
76	63	39	73	56
77	65	13	75	4
Region.	Nonæ Quint.		Octau. Sextæ.	

DE PARTIBVS PROPORTIONALIBVS, & Tabula Sexagenaria. Cap. XXI.

TAbulæ Primi Mobilis ſunt omnes propè ad integros gradus Longitudinis, Latitudinis, ſeu alius circuli dati exaratæ: Plerumque tamen in Aſtronomicis ſupputationibus numeris Graduum integrorum etiam Minuta ſiue Scrupula ſunt adnexa, pro quibus de arcu quæſito capienda eſt Pars Proportionalis. Præſtatur id per Auream Proportionum Regulam directam, in qua Tribus datis Terminis, inter quos in noſtro negotio ſemper eſt numerus 60. Multiplicationeque Secundi cum Tertio, Producti verò Diuiſione per Primum, Quartus prodit in quotiente Quæſitus. Verùm multò promptiùs in Aſtronomicis huiuſmodi operatio expeditur per Canonem, ſeu Tabulam Sexagenariam nuncupatam, cuius vſus, vt in vniuerſa Aſtronomia fecundiſſimus, ita in Parte Proportionali capeſcenda præcipuè mirificus euadit. Dicitur illa Tabula Sexagenaria ex eo quòd tam in fronte, quàm in latere ſiniſtro ſingulos numeros ab vnitate vſque ad 60. extenſos, in Areis verò ſiue angulis communibus ſingulorum numerorum alios numeros contineat in huiuſmodi proportione prædictis reſpondentes. Hanc nihilominùs nos produximus vſque ad ter Sexageſimum numerum ſiue 180. in fronte, vt ſtudioſorum commodo in his noſtris Tabulis Primi Mobilis magis conſuleremus.

Huius Tabulæ adhibendæ in Proportionibus quadruplex omninò caſus dari poteſt; nam Numerus 60., qui ſemper datur, vel eſt, vel non eſt primus Terminus Proportionis. Rurſuſquè vtroque modo dupliciter, nam inter reliquos datos duos Terminos vel nullus, vel aliquis excedit num. 180. maximum in frõte noſtræ Tab.

Numerus 60. eſt primus Terminus proportionis quando data Longitudine, & Latitudine quæritur Declinatio, Aſcenſio recta, vel obliqua: Item cum data declinatione inueſtigatur diſtantia à Meridiano in Tabula Poſitionum. Non eſt primus Terminus quando data Declinatione, vel Aſcenſione Recta, ſiue obliqua quæritur punctum eclipticæ illam obtinens declinationem, vel Aſcenſionem: item cum data Diſtantia à Meridiano quæritur eius circulus Poſitionis.

Si Numerus 60. eſt primus Terminus proportionis, ſic procedendum. Datâ longitudine ad gradus & minuta quæratur differentia Declinationis vel Aſcenſionis inter competentem propoſito gradui integro, & ſequenti ſubtrahendo minorẽ à maiori, & hæc differentia eſt quæ competit vni gradui ſiue 60. minutis longitudinis. In minuta redigatur, ſi non ſit talis ex ſe, illa differentia. Diſpoſitio Terminorum in proportione eſt huiuſmodi: ſi 60. minuta Longitudinis dant dicta minuta Differentiæ Declin. vel Aſcenſioni Minuta Longit. propoſitæ tot numero, quot minuta Differentiæ dabunt, ſiue requirent. Habebitur pars proportionalis ex ea differentia conueniens minutis longitudinis datis vltra gradus integros per Tabulam Sexagenariam ſic. In fronte huius Tabulæ quæratur differentia Declinationis, vel Aſcenſionis, &c. In latere verò ſiniſtro, quærantur minuta longitudinis propoſita nam in Area ſiue angulo communi habebitur optata pars proportionalis in minutis, & ſecundis. Secunda tamen ſi pauciora ſint, quàm 30. tutò poſſunt negligi; ſi verò plura eorum vice minutum vnum aſſumi poteſt. Hæc pars proportionalis deinde additur, vel ſubtrahitur Declinationi, Aſcenſioni, &c. competenti gradibus integris, prout ſequens Declinatio vel Aſcenſio, &c. ſupra præcedentem

dentem creſcit, vel decreſcit, vt habeatur ipſa Declinatio, Aſcenſio, &c. congruēs omninò datis gradibus, & minutis Longitudinis ſimul; idem cum Latitudinis minutis præſtandum eodem omninò modo. Exemplum.

Sit quærenda Declinatio gr. 2. m. 36. ♊ abſque Latitudine: Pro grad. 2. habetur declin. gr. 20. m. 38. pro gr. 3. habetur Dec. 20. m. 50. Differentia competens vni gradui, ſiue 60. minutis eſt m. 12. Quærenda eſt pars propor. illorum 12. m. competens minutis 36. Termini proportionis in Regula aurea ſic ſunt diſpoſiti, ſi minuta 60. Longitudinis dant min. 12. Differentiæ Declinationis; minuta 36. Longitudinis (vltra grad. 2.) quam partem illius differentiæ Declinationis dabuntur? Inuento num. 36. in Fronte Tabulæ Sexagenariæ, & num. 12. in latere ſiniſtro, in Angulo communi habentur minut. 7. ſec. 12. pars nimirum ipſa proportionalis quæſita, quę addita gr. 20. min. 38. competentibus gr. 2. integris (cum num. in Tabula Declin. creſcant) efficiunt gr. 20. min. 45. ſec. 12. Iuſtam ſcilicet Declinationem graduum 2. m. 36. ♊. Aliud exemplum.

Quæratur Aſcenſio Recta grad. 26. min. 51. ♐ cum Latitudine grad. 4. Grad. 26. Longitud. in columna grad. 4. latitud. habet Aſcenſionis Rectę grad. 265. min. 45. grad. 27. longitud. in eadem columna habet grad. 266. min. 49. Differentia pro vno gradu, ſiue min. 60. eſt grad. 1. min. 4. ſeu min. 64. Quærenda eſt de hac pars proportionalis pro min. 51. Differentia 64. inuenitur in fronte Tabulæ Sexagenariæ, & minuta 51. in latere ſiniſtro, & in angulo communi habetur ipſa pars Proportionali quæſita min. 54. ſec. 24. qua addita deinde gradibus 265. min. 45. efficiuntur gradus 266. min. 39. (neglectis ſecundis) pro Aſcenſione Recta grad. 26. 51. ♐ cum Latitud. Boreali grad. 4. Idem modus eſt procedendi ſi gradibus integris Lat. adiecta ſint minuta. Idemque omninò pro Aſcenſion. Obliquis, &c.

Tabulam Sexagenariam vſque ad numerum 180. in Fronte extendimus, vt ita omnibus Differentijs, Longitudinum, & Declinationum ad omnes Tabularum noſtrarum obliquitates inſeruire promptiſſimè poſſit: quoniam verò Differentia Latitudinum ſupra Eleuationem Poli grad. 52. excedit alicubi min. 180. ſeu grad. 3. imò etiam propè Eleuationem Poli grad. 60. excedit aliquando gradus 6., hic rationem ſubnectemus in huiuſmodi caſu.

Exiſtente ergo numero 60. primo termino proportionis, vt ſupra, ſi aliquis reliquorum duorum datorum excedat minuta 180., pluri ingreſſu in Tabulam Sexagenariam opus peragendū. In primo quidem ingreſſu ſub numero frontis 180., inuento alio numero dato in latere ſiniſtro, è directo in angulo communi accipienda eſt pars proportionalis ſeruanda, & mox ſecundo ingreſſu quærendus in fronte exceſſus dicti Termini ſupra 180., & in latere ſiniſtro quærendus alius Terminus, vt priùs; nam in angulo communi habebitur pars noua proportionalis, quæ addita alii priùs ſeruatæ componit partem integram proportionalem quæſitam, &c.

Exemplum. Sub Eleuatione Poli grad. 55. quærenda ſit Aſcenſio obliqua graduum 4. ♋ cum grad. 7. min. 25. Latitudinis Septentrionalis. In Tabula competenti cum Longitudine grad. 4. ♋, & Latitudine gr. 7. inuenio Aſcenſionem Obliq. grad. 37. m. 30. & cum Lat. grad. 8. inuenio grad. 33. m. 46. Itaque differentia pro vno gradu Latitudinis eſt grad. 3. min. 44. ſiue minutorum 224. In Tabula Sexagenaria cum 180. in fronte, & 25. in latere habeo in areola communi m. 75. ſeruanda. Rurſus cum exceſſu numeri 224. ſupra 180., nimirum cum m. 44. in fronte, & cum iiſdem m 25. in latere inuenio in areola communi m. 18. ſec. 20. addenda

	1		2		3		4		5		6		7		8		9		10	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
1	0	1	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	10
2	0	2	0	4	0	6	0	8	0	10	0	12	0	14	0	16	0	18	0	20
3	0	3	0	6	0	9	0	12	0	15	0	18	0	21	0	24	0	27	0	30
4	0	4	0	8	0	12	0	16	0	20	0	24	0	28	0	32	0	36	0	40
5	0	5	0	10	0	15	0	20	0	25	0	30	0	35	0	40	0	45	0	50
6	0	6	0	12	0	18	0	24	0	30	0	36	0	42	0	48	0	54	1	0
7	0	7	0	14	0	21	0	28	0	35	0	42	0	49	0	56	1	3	1	10
8	0	8	0	16	0	24	0	32	0	40	0	48	0	56	1	4	1	12	1	20
9	0	9	0	18	0	27	0	36	0	45	0	54	1	3	1	12	1	21	1	30
10	0	10	0	20	0	30	0	40	0	50	1	0	1	10	1	20	1	30	1	40
11	0	11	0	22	0	33	0	44	0	55	1	6	1	17	1	28	1	39	1	50
12	0	11	0	24	0	36	0	48	1	0	1	12	1	24	1	36	1	48	2	0
13	0	13	0	26	0	39	0	52	1	5	1	18	1	31	1	44	1	57	2	10
14	0	14	0	28	0	42	0	56	1	10	1	24	1	39	1	52	2	6	2	20
15	0	15	0	30	0	45	1	0	1	15	1	30	1	45	2	0	2	15	2	30
16	0	16	0	32	0	48	1	4	1	20	1	36	1	52	2	8	2	24	2	40
17	0	17	0	54	0	51	1	8	1	25	1	42	1	59	2	16	2	33	2	50
18	0	18	0	36	0	54	1	12	1	30	1	48	2	6	2	24	2	42	3	0
19	0	19	0	38	0	57	1	16	1	35	1	54	2	13	2	32	2	51	3	10
20	0	20	0	40	1	0	1	20	1	40	2	0	2	20	2	40	3	0	3	20
21	0	21	0	42	1	3	1	24	1	45	2	6	2	27	2	48	3	9	3	30
22	0	22	0	44	1	6	1	28	1	50	2	12	2	34	2	56	3	18	3	40
23	0	23	0	46	1	9	1	32	1	55	2	18	2	41	3	4	3	27	3	50
24	0	24	0	48	1	12	1	36	2	0	2	24	2	48	3	12	3	36	4	0
25	0	25	0	50	1	15	1	40	2	5	2	30	2	55	3	20	3	45	4	10
26	0	26	0	52	1	18	1	44	2	10	2	36	3	2	3	28	3	54	4	20
27	0	27	0	54	1	21	1	48	2	15	2	42	3	9	3	36	3	3	4	30
28	0	28	0	57	1	24	1	52	2	20	2	48	3	16	3	44	4	12	4	40
29	0	29	0	58	1	27	1	56	2	25	2	54	3	23	3	52	4	21	4	50
30	0	30	1	0	1	30	2	0	2	30	2	0	3	30	4	0	4	30	4	0
	1		2		3		4		5		6		7		8		9		10	

	1		2		3		4		5		6		7		8		9		10	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
31	0	31	1	2	1	33	2	4	2	35	3	6	3	37	4	8	4	39	5	10
32	0	32	1	4	1	36	2	8	2	40	3	12	3	44	4	16	4	48	5	20
33	0	33	1	6	1	39	2	12	2	45	3	18	3	51	4	24	4	57	5	30
34	0	34	1	8	1	42	2	16	2	50	3	24	3	58	4	32	5	6	5	40
35	0	35	1	10	1	45	2	20	2	55	3	30	4	5	4	40	5	15	5	50
36	0	36	1	12	1	48	2	24	3	0	3	36	4	12	4	48	5	24	6	0
37	0	37	1	14	1	51	2	28	3	5	3	42	4	19	4	56	5	33	6	10
38	0	38	1	15	1	54	2	32	3	10	3	48	4	26	5	4	5	42	6	20
39	0	39	1	18	1	57	2	36	3	15	3	54	4	33	5	12	5	51	6	30
40	0	40	1	20	2	0	2	40	3	20	4	0	4	40	5	20	6	0	6	40
41	0	41	1	22	2	3	2	44	3	25	4	6	4	47	5	28	6	9	6	50
42	0	42	1	24	2	6	2	48	3	30	4	12	4	54	5	36	6	18	7	0
43	0	43	1	26	2	9	2	52	3	35	4	18	5	1	5	44	6	27	7	10
44	0	44	1	28	2	12	2	56	3	40	4	24	5	8	5	52	6	36	7	20
45	0	45	1	30	2	15	3	0	3	45	4	30	5	15	6	0	6	45	7	30
46	0	46	1	32	2	18	3	4	3	50	4	36	5	22	6	8	6	54	7	40
47	0	47	1	34	2	21	3	8	3	55	4	42	5	29	6	16	7	3	7	50
48	0	48	1	36	2	24	3	12	4	0	4	48	5	36	6	24	7	12	8	0
49	0	49	1	38	2	27	3	16	4	5	4	54	5	43	6	32	7	21	8	10
50	0	50	1	40	2	30	3	20	4	10	5	0	5	50	6	40	7	30	8	20
51	0	51	1	42	2	33	3	24	4	15	5	6	5	57	6	48	7	39	8	30
52	0	52	1	44	2	36	3	28	4	20	5	12	6	4	6	56	7	48	8	40
53	0	53	1	46	2	39	3	32	4	25	5	18	6	11	7	4	7	57	8	50
54	0	54	1	48	2	42	3	36	4	30	5	24	6	18	7	12	8	6	9	0
55	0	55	1	50	2	45	3	40	4	35	5	30	6	25	7	[illegible]	[illegible]	15	9	10
56	0	59	1	52	2	48	3	44	4	40	5	36	6	32	7	[illegible]	[illegible]	24	9	[illegible]
57	0	57	1	54	2	51	3	48	4	45	5	42	6	39	7	36	[illegible]	33	9	30
58	0	58	1	56	2	54	3	52	4	50	5	48	6	46	7	44	[illegible]	42	9	40
59	0	59	1	58	2	57	3	56	4	55	5	54	6	53	7	52	[illegible]	51	9	50
60	0	0	2	0	2	0	4	0	5	0	6	0	7	0	8	0	9	0	10	0
	1		2		3		4		5		6		7		8		9		10	

	11		12		13		14		15		16		17		18		19		20	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
1	0	11	0	12	0	13	0	14	0	15	0	16	0	17	0	18	0	19	0	20
2	0	22	0	24	0	26	0	28	0	30	0	32	0	34	0	36	0	38	0	40
3	0	33	0	36	0	39	0	42	0	45	0	48	0	51	0	54	0	57	1	0
4	0	44	0	48	0	52	0	56	1	0	1	4	1	8	1	12	1	16	1	20
5	0	55	1	0	1	5	1	10	1	15	1	20	1	25	1	30	1	35	1	40
6	1	6	1	12	1	18	1	24	1	30	1	36	1	42	1	48	1	54	2	0
7	1	17	1	24	1	31	1	38	1	45	1	52	1	59	2	6	2	13	2	20
8	1	28	1	36	1	44	1	52	2	0	2	8	2	16	2	24	2	32	2	40
9	1	39	1	48	1	57	2	6	2	15	2	24	2	33	2	42	2	51	3	0
10	1	50	2	0	2	10	2	20	2	30	2	40	2	50	3	0	3	10	3	20
11	2	1	2	12	2	23	2	34	2	45	2	56	3	7	3	18	3	29	3	40
12	2	12	2	24	2	36	2	48	3	0	3	12	3	24	3	36	3	48	4	0
13	2	23	2	36	2	49	3	2	3	15	3	28	3	41	3	54	4	7	4	20
14	2	34	2	48	3	2	3	16	3	30	3	44	3	58	4	12	4	26	4	40
15	2	45	3	0	3	15	3	30	3	45	4	0	4	15	4	30	4	45	5	0
16	2	56	3	12	3	28	3	44	4	0	4	16	4	32	4	48	5	4	5	20
17	3	7	3	24	3	41	3	58	4	15	4	32	4	49	5	6	5	23	5	40
18	3	18	3	36	3	54	4	12	4	30	4	48	5	6	5	24	5	42	6	0
19	3	29	3	48	4	7	4	26	4	45	5	4	5	23	5	42	6	1	6	20
20	3	40	4	0	4	20	4	40	5	0	5	20	5	40	6	0	6	20	6	40
21	3	51	4	12	4	33	4	54	5	15	5	36	5	57	6	18	6	39	7	0
22	4	2	4	24	4	46	5	8	5	30	5	52	6	14	6	36	6	58	7	20
23	4	13	4	36	4	59	5	22	5	45	6	8	6	31	6	54	7	17	7	40
24	4	24	[illegible]	48	5	12	5	36	6	0	6	24	6	48	7	12	7	36	8	0
25	4	35	[illegible]	[illegible]	5	25	5	50	6	15	6	40	7	5	7	30	7	55	8	20
26	4	46	[illegible]	12	5	38	6	4	6	30	6	56	7	22	7	48	8	14	8	40
27	4	57	5	24	5	51	6	18	6	45	7	12	7	39	8	6	8	33	9	0
28	5	8	[illegible]	36	6	4	6	32	7	0	7	28	7	56	8	24	8	52	9	20
29	5	19	5	48	6	17	6	46	7	15	7	44	8	13	8	42	9	11	9	40
30	5	30	6	0	6	30	7	0	7	30	8	0	8	30	9	0	9	30	10	0
	11		12		13		14		15		16		17		18		19		20	

	11		12		13		14		15		16		17		18		19		20	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
31	5	41	6	12	6	43	7	14	7	45	8	16	8	47	9	28	9	49	10	20
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28	19	8	19	36	20	4	20	32	21	0	21	28	21	56	22	24	22	52	23	20
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	41		42		43		44		45		46		47		48		49		50	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
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37	25	17	25	54	26	31	27	8	27	45	28	22	28	59	29	36	30	13	30	50
38	25	58	26	36	27	14	27	52	28	30	29	8	29	46	30	24	31	2	31	40
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41	28	1	28	52	29	23	30	4	30	45	31	26	32	7	32	48	33	29	34	10
42	28	42	29	24	30	6	30	48	31	30	32	12	32	54	33	36	34	18	35	0
43	29	23	30	6	30	49	31	32	32	15	32	58	33	41	34	24	35	7	35	50
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46	31	26	32	12	32	58	33	44	34	30	35	16	36	2	36	48	37	34	38	20
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48	32	48	33	36	34	24	35	12	36	0	36	48	37	36	38	24	39	12	40	0
49	33	29	34	18	35	7	35	56	36	45	37	34	38	23	39	12	40	1	40	50
50	34	10	35	0	35	50	36	40	37	30	38	20	39	10	40	0	40	50	41	40
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52	35	32	36	24	37	16	38	8	39	0	39	52	40	44	41	36	42	28	43	20
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54	36	54	37	48	38	42	39	26	40	30	41	24	42	18	43	12	44	6	45	0
55	37	35	38	30	39	25	40	20	41	15	42	10	43	5	44	0	44	55	45	50
56	38	16	39	12	40	8	41	4	42	0	42	56	43	52	44	48	45	44	46	40
57	38	57	39	54	40	51	41	48	42	45	43	42	44	39	45	36	46	33	47	30
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59	40	19	41	18	42	17	43	16	44	15	45	14	46	13	47	12	48	11	49	10
60	41	0	42	0	43	0	44	0	45	0	46	0	47	0	48	0	49	0	50	0
	41		42		43		44		45		46		47		48		49		50	

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	51		52		53		54		55		56		57		58		59		60	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
1	0	51	0	52	0	53	0	54	0	55	0	56	0	57	0	58	0	59	1	0
2	1	42	1	44	1	46	1	48	1	50	1	52	1	54	1	56	1	58	2	0
3	2	33	2	36	2	39	2	42	2	45	2	48	2	51	2	54	2	57	3	0
4	3	14	3	28	3	32	3	36	3	40	3	44	3	48	3	52	3	56	4	0
5	4	25	4	20	4	25	4	30	4	35	4	40	4	45	4	50	4	55	5	0
6	5	6	5	12	5	18	5	24	5	30	5	36	5	42	5	48	4	54	6	0
7	5	57	6	4	6	11	6	18	6	25	6	32	6	39	6	46	6	53	7	0
8	6	48	6	56	7	4	7	12	7	20	7	28	7	36	7	44	7	52	8	0
9	7	39	7	48	7	57	8	6	8	15	8	24	8	33	8	42	8	51	9	0
10	8	30	8	40	8	50	9	0	9	10	9	20	9	30	9	40	9	50	10	0
11	9	21	9	32	9	43	9	54	10	5	10	16	10	27	10	38	10	49	11	0
12	10	12	10	24	10	36	10	48	11	0	11	12	11	24	11	36	11	48	12	0
13	11	3	11	16	11	29	11	42	11	55	12	8	12	21	12	34	12	47	13	0
14	11	54	12	8	12	22	12	36	12	50	13	4	13	18	13	32	13	46	14	0
15	12	45	13	0	13	15	13	30	13	45	14	0	14	15	14	30	14	45	15	0
16	13	36	13	52	14	8	14	24	14	40	14	56	15	12	15	28	15	44	16	0
17	14	27	14	44	15	1	15	18	15	35	15	52	16	9	16	26	16	43	17	0
18	15	18	15	36	15	54	16	12	16	30	16	48	17	6	17	24	17	42	18	0
19	16	9	16	28	16	47	17	6	17	25	17	44	18	3	18	22	18	41	19	0
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21	17	51	18	12	18	33	18	54	19	15	19	36	19	57	20	18	20	39	21	0
22	18	42	19	4	19	26	19	48	20	10	20	32	20	54	21	16	21	38	22	0
23	19	33	19	56	20	19	20	42	21	5	21	28	21	51	22	14	22	37	23	0
24	20	24	20	48	21	12	21	36	22	0	22	24	22	48	23	12	23	36	24	0
25	21	15	21	40	22	5	22	30	22	55	23	20	23	45	24	10	24	35	25	0
26	22	6	22	32	22	58	23	24	23	50	24	16	24	42	25	8	25	34	26	0
27	22	57	23	24	23	51	24	18	24	45	25	12	25	39	26	6	26	33	27	0
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29	24	39	25	8	25	37	26	6	26	35	27	4	27	33	28	2	28	31	29	0
30	25	30	26	0	26	30	27	0	27	30	28	0	28	30	29	0	29	30	30	0
	51		52		53		54		55		56		57		58		59		60	

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	51		52		53		54		55		56		57		58		59		60	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
31	26	21	26	52	27	23	27	54	28	25	28	56	29	27	29	58	30	29	31	0
32	27	12	27	44	28	16	28	48	29	20	29	52	30	24	30	56	31	28	32	0
33	28	3	28	36	29	9	29	42	30	15	30	48	31	21	31	54	32	27	33	0
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35	29	45	30	20	30	55	31	30	32	5	32	40	33	15	33	50	34	25	35	0
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39	33	9	33	48	34	27	35	6	35	45	36	24	37	3	37	42	38	21	39	0
40	34	0	34	40	35	20	36	0	36	40	37	20	38	0	38	40	39	20	40	0
41	34	51	35	32	36	13	36	54	37	35	38	16	38	57	39	38	40	19	41	0
42	35	42	36	24	37	6	37	48	38	30	39	12	39	54	40	36	41	18	42	0
43	36	33	37	16	37	59	38	42	39	25	40	8	40	51	41	34	42	17	43	0
44	37	24	38	8	38	52	39	36	40	20	41	4	41	48	42	32	43	16	44	0
45	38	15	39	0	39	45	40	30	41	15	42	0	42	45	43	30	44	15	45	0
46	39	6	39	52	40	38	41	24	42	10	42	56	43	42	44	28	45	14	46	0
47	39	57	40	44	41	31	42	18	43	5	43	52	44	39	45	26	46	13	47	0
48	40	48	41	36	42	24	43	12	44	0	44	48	45	36	46	24	47	12	48	0
49	41	39	42	28	43	17	44	6	44	55	45	44	46	33	47	22	48	11	49	0
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52	44	12	45	4	45	56	46	48	47	40	48	32	49	24	50	16	51	8	52	0
53	45	3	45	56	46	49	47	42	48	35	49	28	50	21	51	14	52	7	53	0
54	45	54	46	48	47	42	48	36	49	30	50	24	51	18	52	12	53	6	54	0
55	46	45	47	40	48	35	49	30	50	25	51	20	52	15	53	10	54	5	55	0
56	47	36	48	32	49	28	50	24	51	20	52	16	53	12	54	8	55	4	56	0
57	48	27	49	24	50	21	51	18	52	15	53	12	54	9	55	6	56	3	57	0
58	49	18	50	16	51	14	52	12	53	10	54	8	55	6	56	4	57	2	58	0
59	50	9	51	8	52	7	53	6	54	5	55	4	56	3	57	2	58	1	59	0
60	51	0	52	0	53	0	54	0	55	0	56	0	57	0	58	0	59	0	60	0
	51		52		53		54		55		56		57		58		59		60	

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G	61 G	61 M	62 G	62 M	63 G	63 M	64 G	64 M	65 G	65 M	66 G	66 M	67 G	67 M	68 G	68 M	69 G	69 M	70 G	70 M
1	1	1	1	2	1	3	1	4	1	5	1	6	1	7	1	8	1	9	1	10
2	2	2	2	4	2	6	2	8	2	10	2	12	2	14	2	16	2	18	2	20
3	3	3	3	6	3	9	3	12	3	15	3	18	3	21	3	24	3	27	3	30
4	4	4	4	8	4	12	4	16	4	20	4	24	4	28	4	32	4	36	4	40
5	5	5	5	10	5	15	5	20	5	25	5	30	5	35	5	40	5	45	5	50
6	6	6	6	12	6	18	6	24	6	30	6	36	6	42	6	48	6	54	7	0
7	7	7	7	14	7	21	7	28	7	35	7	42	7	49	7	56	8	3	8	10
8	8	8	8	16	8	24	8	32	8	40	8	48	8	56	9	4	9	12	9	20
9	9	9	9	18	9	27	9	36	9	45	9	54	10	3	10	12	10	21	10	30
10	10	10	10	20	10	30	10	40	10	50	11	0	11	10	11	20	11	30	11	40
11	11	11	11	22	11	33	11	44	11	55	12	6	12	17	12	28	12	39	12	50
12	12	12	12	24	12	36	12	48	13	0	13	12	13	24	13	36	13	48	14	0
13	13	13	13	26	13	39	13	52	14	5	14	18	14	31	14	44	14	57	15	10
14	14	14	14	28	14	42	14	56	15	10	15	24	15	38	15	52	16	6	16	20
15	15	15	15	30	15	45	16	0	16	15	16	30	16	45	17	0	17	15	17	30
16	16	16	16	32	16	48	17	4	17	20	17	36	17	52	18	8	18	24	18	40
17	17	17	17	34	17	51	18	8	18	25	18	42	18	59	19	16	19	33	19	50
18	18	18	18	36	18	54	19	12	19	30	19	48	20	6	20	24	20	42	21	0
19	19	19	19	38	19	57	20	16	20	35	20	54	21	13	21	32	21	51	22	10
20	20	20	20	40	21	0	21	20	21	40	22	0	22	20	22	40	23	0	23	20
21	21	21	21	42	22	3	22	24	22	45	23	6	23	27	23	48	24	9	24	30
22	22	22	22	44	23	6	23	28	23	50	24	12	24	34	24	56	25	18	25	40
23	23	23	23	46	24	9	24	32	24	55	25	18	25	41	26	4	26	27	26	50
24	24	24	24	48	25	12	25	36	26	0	26	24	26	48	27	12	27	36	28	0
25	25	25	25	50	26	15	26	40	27	5	27	30	27	55	28	20	28	45	29	10
26	26	26	26	52	27	18	27	44	28	10	28	36	29	2	29	28	29	54	30	20
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28	28	28	28	56	29	24	29	52	30	20	30	48	31	16	31	44	32	12	32	40
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30	30	30	31	0	31	30	32	0	32	30	33	0	33	30	34	0	34	30	35	0
	61		62		63		64		65		66		67		68		69		70	

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G	61 G	61 M	62 G	62 M	63 G	63 M	64 G	64 M	65 G	65 M	66 G	66 M	67 G	67 M	68 G	68 M	69 G	69 M	70 G	70 M
31	31	31	32	2	32	33	33	4	33	35	34	6	34	37	35	8	35	39	36	10
32	32	32	33	4	33	36	34	8	34	40	35	12	35	44	36	16	36	48	37	20
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35	35	35	36	10	36	45	37	20	37	55	38	30	39	5	39	40	40	15	40	50
36	36	36	37	12	37	48	38	24	39	0	39	36	40	12	40	48	41	24	42	0
37	37	37	38	14	38	51	39	28	40	5	40	42	41	19	41	56	42	33	43	10
38	38	38	39	16	39	54	40	32	41	10	41	48	42	26	43	4	43	42	44	20
39	39	39	40	18	40	57	41	36	42	15	42	54	43	33	44	12	44	51	45	30
40	40	40	41	20	42	0	42	40	43	20	44	0	44	40	45	20	46	0	46	40
41	41	41	42	22	43	3	43	44	44	25	45	6	45	47	46	28	47	9	47	50
42	42	42	43	24	44	6	44	48	45	30	46	12	46	54	47	36	48	18	49	0
43	43	43	44	26	45	9	45	52	46	35	47	18	48	1	48	44	49	27	50	10
44	44	44	45	28	46	12	46	56	47	40	48	24	49	8	49	52	50	36	51	20
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46	46	46	47	32	48	18	49	4	49	50	50	36	51	22	52	8	52	54	53	40
47	47	47	48	34	49	21	50	8	50	55	51	42	52	29	53	16	54	3	54	50
48	48	48	49	36	50	24	51	12	52	0	52	48	53	36	54	24	55	12	56	0
49	49	49	50	38	51	27	52	16	53	5	53	54	54	43	55	32	56	21	57	10
50	50	50	51	40	52	30	53	20	54	10	55	0	55	50	56	40	57	30	58	20
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52	52	52	53	44	54	36	55	28	56	20	57	12	58	4	58	56	59	48	60	40
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54	54	54	55	48	56	42	57	36	58	30	59	24	60	18	61	12	62	6	63	0
55	55	55	56	50	57	45	58	40	59	35	60	30	61	25	62	20	63	15	64	10
56	56	56	57	52	58	48	59	44	60	40	61	36	62	32	63	28	64	24	65	20
57	57	57	58	54	59	51	60	48	61	45	62	42	63	39	64	36	65	33	66	30
58	58	58	59	56	60	54	61	52	62	50	63	48	64	46	65	44	66	42	67	40
59	59	59	60	58	61	57	62	56	63	55	64	54	65	53	66	52	67	51	68	50
60	61	0	62	0	63	0	64	0	65	0	67	0	66	0	68	0	69	0	70	0
	61		62		63		64		65		66		67		68		69		70	

	71		72		73		74		75		76		77		78		79		80	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
1	1	11	1	12	1	13	1	14	1	15	1	16	1	17	1	18	1	19	1	20
2	2	22	2	24	2	26	2	28	2	30	2	32	2	34	2	36	2	38	2	40
3	3	33	3	36	3	39	3	42	3	45	3	48	3	51	3	54	3	57	4	0
4	4	44	4	48	4	52	4	56	5	0	5	4	5	8	5	12	5	16	5	20
5	5	55	6	0	6	5	6	10	6	15	6	20	6	25	6	30	6	35	6	40
6	7	6	7	12	7	18	7	24	7	30	7	36	7	42	7	48	7	54	8	0
7	8	17	8	24	8	31	8	38	8	45	8	52	8	59	9	6	9	13	9	20
8	9	28	9	36	9	44	9	52	10	0	10	8	10	16	10	24	10	32	10	40
9	10	39	10	48	10	57	11	6	11	15	11	24	11	33	11	42	11	51	12	0
10	11	50	12	0	12	10	12	20	12	30	12	40	12	50	13	0	13	10	13	20
11	13	1	13	12	13	23	13	34	13	45	13	56	14	7	14	18	14	29	14	40
12	14	12	14	24	14	36	14	48	15	0	15	12	15	24	15	36	15	48	16	0
13	15	23	15	36	15	49	16	2	16	15	16	28	16	41	16	54	17	7	17	20
14	16	34	16	48	17	2	17	16	17	30	17	44	17	58	18	12	18	26	18	40
15	17	45	18	0	18	15	18	30	18	45	19	0	19	15	19	30	19	45	20	0
16	18	56	19	12	19	28	19	44	20	0	20	16	20	32	20	48	21	4	21	20
17	20	7	20	24	20	41	20	58	21	15	21	32	21	49	22	6	22	23	22	40
18	21	18	21	36	21	54	22	12	22	30	22	48	23	6	23	24	23	42	24	0
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G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
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	91		92		93		94		95		96		97		98		99		100	
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27	45	27	45	54	46	21	46	48	47	15
28	47	8	47	36	48	4	48	32	49	0
29	48	49	49	18	49	47	50	16	50	45
30	50	30	51	0	51	30	52	0	52	30
	101		102		103		104		105	

	106		107		108		109		110	
G	G	M	G	M	G	M	G	M	G	M
1	1	46	1	47	1	48	1	49	1	50
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3	5	18	5	21	5	24	5	27	5	30
4	7	4	7	8	7	12	7	16	7	20
5	8	50	8	55	9	0	9	5	9	10
6	10	36	10	42	10	48	10	54	11	0
7	12	22	12	29	12	36	12	43	12	50
8	14	8	14	16	14	24	14	32	14	40
9	15	54	16	3	16	12	16	21	16	30
10	17	40	17	50	18	0	18	10	18	20
11	19	26	19	37	19	48	19	59	20	10
12	21	12	21	24	21	36	21	48	22	0
13	22	58	23	11	23	24	23	37	23	50
14	24	44	24	58	25	12	25	26	25	40
15	26	30	26	45	27	0	27	15	27	30
16	28	16	28	32	28	48	29	4	29	20
17	30	2	30	19	30	36	30	53	31	10
18	31	48	32	6	32	24	32	42	33	0
19	33	34	33	53	34	12	34	31	34	50
20	35	20	35	40	36	0	36	20	36	40
21	37	6	37	27	37	48	38	9	38	30
22	38	52	39	14	39	36	39	58	40	20
23	40	38	41	1	41	24	41	47	42	10
24	42	24	42	48	43	12	43	36	44	0
25	44	10	44	35	45	0	45	25	45	50
26	45	56	46	22	46	48	47	14	47	40
27	47	42	48	9	48	36	49	3	49	30
28	49	28	49	56	50	24	50	52	51	20
29	51	14	51	43	52	12	52	41	53	10
30	53	0	53	30	54	0	54	30	55	0
	106		107		108		109		110	

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	101		102		103		104		105		106		107		108		109		110	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
31	52	11	52	42	53	13	53	44	54	15	54	46	55	17	55	48	56	19	56	50
32	53	52	54	24	54	56	55	28	56	0	56	32	57	4	57	36	58	8	58	40
33	55	33	56	6	56	39	57	12	57	45	58	18	58	51	59	24	59	57	60	30
34	57	14	57	48	58	22	58	56	59	30	60	4	60	38	61	12	61	46	62	20
35	58	55	59	30	60	5	60	40	61	15	61	50	62	25	63	0	63	35	64	10
36	60	36	61	12	61	48	62	24	63	0	63	36	64	12	64	48	65	24	66	0
37	62	17	62	54	63	31	64	8	64	45	65	22	65	59	66	36	67	13	67	50
38	63	58	64	36	65	14	65	52	66	30	67	8	67	46	68	24	69	2	69	40
39	65	39	66	18	66	57	67	36	68	15	68	54	69	33	70	12	70	51	71	30
40	67	20	68	0	68	40	69	20	70	0	70	40	71	20	72	0	72	40	73	20
41	69	1	69	52	70	23	71	4	71	45	72	26	73	7	73	48	74	29	75	10
42	70	42	71	24	72	6	72	48	73	30	74	12	74	54	75	36	76	18	77	0
43	72	23	73	6	73	49	74	32	75	15	75	58	76	41	77	24	78	7	78	50
44	74	4	74	48	75	32	76	16	77	0	77	44	78	28	79	12	79	56	80	40
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46	77	26	78	12	78	58	79	44	80	30	81	16	82	2	82	48	83	34	84	20
47	79	7	79	54	80	41	81	28	82	15	83	2	83	49	84	36	85	23	86	10
48	80	48	81	36	82	24	83	12	84	0	84	48	85	36	86	24	87	12	88	0
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50	84	10	85	0	85	50	86	40	87	30	88	20	89	10	90	0	90	50	91	40
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52	87	32	88	24	89	16	90	8	91	0	91	52	92	44	93	36	94	28	95	20
53	89	13	90	6	90	59	91	52	92	45	93	38	94	31	95	24	96	17	97	10
54	90	54	91	48	92	42	93	26	94	30	95	24	96	18	97	12	98	6	99	0
55	92	35	93	30	94	25	95	20	96	15	97	10	98	5	99	0	99	55	100	50
56	94	16	95	12	96	8	97	4	98	0	98	56	99	52	100	48	101	44	102	40
57	95	57	96	54	97	51	98	48	99	45	100	42	101	39	102	36	103	33	104	30
58	97	38	98	36	99	34	100	32	101	30	102	28	103	26	104	24	105	22	106	20
59	99	19	100	18	101	17	102	16	103	15	104	14	105	13	106	12	107	11	108	10
60	101	0	102	0	103	0	104	0	105	0	106	0	107	0	108	0	109	0	110	0
	101		102		103		104		105		106		107		108		109		110	

	111		112		113		114		115		116		117		118		119		120	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
1	1	51	1	52	1	53	1	54	1	55	1	56	1	57	1	58	1	59	2	0
2	3	42	3	44	3	46	3	48	3	50	3	52	3	54	3	56	3	58	4	0
3	5	33	5	36	5	39	5	42	5	45	5	48	5	51	5	54	5	57	6	0
4	7	24	7	28	7	32	7	36	7	40	7	44	7	48	7	52	7	56	8	0
5	9	15	9	20	9	25	9	30	9	35	9	40	9	45	9	50	9	55	10	0
6	11	6	11	12	11	18	11	24	11	30	11	36	11	42	11	48	11	54	12	0
7	12	57	13	4	13	11	13	18	13	25	13	32	13	39	13	46	13	53	14	0
8	14	48	14	56	14	4	15	12	15	20	15	28	15	36	15	44	15	52	16	0
9	16	39	16	48	16	57	17	6	17	15	17	24	17	33	17	42	17	51	18	0
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11	20	21	20	32	20	43	20	54	21	5	21	16	21	27	21	38	21	49	22	0
12	22	12	22	24	22	36	22	48	23	0	23	12	23	24	23	36	23	48	24	0
13	24	3	24	16	24	29	24	42	24	55	25	8	25	21	25	34	25	47	26	0
14	25	54	26	8	26	22	26	36	26	50	27	4	27	18	27	32	27	46	28	0
15	27	45	28	0	28	15	28	30	28	45	29	0	29	15	29	30	29	45	30	0
16	29	36	29	52	30	8	30	24	30	40	30	56	31	12	31	28	31	44	32	0
17	31	27	31	44	32	1	32	18	32	35	32	52	33	9	33	26	33	43	34	0
18	33	18	33	36	33	54	34	12	34	30	34	48	35	6	35	24	35	42	36	0
19	35	9	35	28	35	47	36	6	36	25	36	44	37	3	37	22	37	41	38	0
20	37	0	37	20	37	40	38	0	38	20	38	40	39	0	39	20	39	40	40	0
21	38	51	39	12	39	33	39	54	40	15	40	36	40	57	41	18	41	39	42	0
22	40	42	41	4	41	26	41	48	42	10	42	32	42	54	43	16	43	38	44	0
23	42	33	42	56	43	19	43	42	44	5	44	28	44	51	45	14	45	37	46	0
24	44	24	44	48	45	12	45	36	46	0	46	24	46	48	47	12	47	36	48	0
25	46	15	46	40	47	5	47	30	47	55	48	20	48	45	49	10	49	35	50	0
26	48	6	48	32	48	58	49	24	49	50	50	16	50	42	51	8	51	34	52	0
27	49	57	50	24	50	51	51	18	51	45	52	12	52	39	53	6	53	33	54	0
28	51	48	52	16	52	44	53	12	53	40	54	8	54	36	55	4	55	32	56	0
29	53	39	54	8	54	37	55	6	55	35	56	4	56	33	57	2	57	31	58	0
30	55	30	56	0	56	30	57	0	57	30	58	0	58	30	59	0	59	30	60	0

111 112 113 114 115 116 117 118 119 120

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	111		112		113		114		115		116		117		118		119		120	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
31	57	21	57	52	58	23	58	54	59	25	59	56	60	27	60	58	61	29	62	0
32	59	12	59	44	60	16	60	48	61	20	61	52	62	24	62	56	63	28	64	0
33	61	3	61	36	62	9	62	42	63	15	63	48	64	21	64	54	65	27	66	0
34	62	54	63	28	64	2	64	36	65	10	65	44	66	18	66	52	67	26	68	0
35	64	45	65	20	65	55	66	30	67	5	67	40	68	15	68	50	69	25	70	0
36	66	36	67	12	67	48	68	24	69	0	69	36	70	12	70	48	71	24	72	0
37	68	27	69	4	69	41	70	18	70	55	71	32	72	9	72	46	73	23	74	0
38	70	18	70	56	71	34	72	12	72	50	73	28	74	6	74	44	75	22	76	0
39	72	9	72	48	73	27	74	6	74	45	75	24	76	3	76	42	77	21	78	0
40	74	0	74	40	75	20	76	0	76	40	77	20	78	0	78	40	79	20	80	0
41	75	51	76	32	77	13	77	54	78	35	79	16	79	57	80	38	81	19	82	0
42	77	42	78	24	79	6	79	48	80	30	81	12	81	54	82	36	83	18	84	0
43	79	33	80	16	80	59	81	42	82	25	83	8	83	51	84	34	85	17	86	0
44	81	24	82	8	82	52	83	36	84	20	85	4	85	48	86	32	87	16	88	0
45	83	15	84	0	84	45	85	30	86	15	87	0	87	45	88	30	89	15	90	0
46	85	6	85	52	86	38	87	24	88	10	88	56	89	42	90	28	91	14	92	0
47	86	57	87	44	88	31	89	18	90	5	90	52	91	39	92	26	93	13	94	0
48	88	48	89	36	90	24	91	12	92	0	92	48	93	36	94	24	95	12	96	0
49	90	39	91	28	92	17	93	6	93	55	94	44	95	33	96	22	97	11	98	0
50	92	30	93	20	94	10	95	0	95	50	96	40	97	30	98	20	99	10	100	0
51	94	21	95	12	96	3	96	54	97	45	98	36	99	27	100	18	101	9	102	0
52	96	12	97	4	97	56	98	48	99	40	100	32	101	24	102	16	103	8	104	0
53	98	3	98	56	99	49	100	42	101	35	102	28	103	21	104	14	105	7	106	0
54	99	54	100	48	101	42	102	36	103	30	104	24	105	18	106	12	107	6	108	0
55	101	45	102	40	103	35	104	30	105	25	106	20	107	15	108	10	109	5	110	0
56	103	36	104	32	105	28	106	24	107	20	108	16	109	12	110	8	111	4	112	0
57	105	27	106	24	107	21	108	18	109	15	110	12	111	9	112	6	113	3	114	0
58	107	18	108	16	109	14	110	12	111	10	112	8	113	6	114	4	115	2	116	0
59	109	9	110	8	111	7	112	6	113	5	114	4	115	3	116	2	117	1	118	0
60	111	0	112	0	113	0	114	0	115	0	116	0	117	0	118	0	119	0	120	0
	111		112		113		114		115		116		117		118		119		120	

	121		122		123		124		125		126		127		128		129		130	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
1	2	1	2	2	2	3	2	4	2	5	2	6	2	7	2	8	2	9	2	10
2	4	2	4	4	4	6	4	8	4	10	4	12	4	14	4	16	4	18	4	20
3	6	3	6	6	6	9	6	12	6	15	6	18	6	21	6	24	6	27	6	30
4	8	4	8	8	8	12	8	16	8	20	8	24	8	28	8	32	8	36	8	40
5	10	5	10	10	10	15	10	20	10	25	10	30	10	35	10	40	10	45	10	50
6	12	6	12	12	12	18	12	24	12	30	12	36	12	42	12	48	12	54	13	0
7	14	7	14	14	14	21	14	28	14	35	14	42	14	49	14	56	15	33	15	10
8	16	8	16	16	16	24	16	32	16	40	16	48	16	56	17	4	17	12	17	20
9	18	9	18	18	18	27	18	36	18	45	18	54	19	3	19	12	19	21	19	30
10	20	10	20	20	20	30	20	40	20	50	21	0	21	10	21	20	21	30	21	40
11	22	11	22	22	22	33	22	44	22	55	23	6	23	17	23	28	23	39	23	50
12	24	12	24	24	24	36	24	48	25	0	25	12	25	24	25	36	26	48	26	0
13	26	13	26	26	26	39	26	52	27	5	27	18	27	31	27	44	27	57	28	10
14	28	14	28	28	28	42	28	56	29	10	29	24	29	38	29	52	30	6	30	20
15	30	15	30	30	30	45	31	0	31	15	31	30	31	45	32	0	32	15	32	30
16	32	16	32	32	32	48	33	4	33	20	33	36	33	52	34	8	34	24	34	40
17	34	17	34	34	34	51	35	8	35	25	35	42	35	59	36	16	36	33	36	50
18	36	18	36	36	36	54	37	12	37	30	39	48	38	6	38	24	38	42	39	0
19	38	19	38	38	38	57	39	16	39	35	39	54	40	13	40	32	40	51	41	10
20	40	20	40	40	41	0	41	20	41	40	42	0	42	20	42	40	43	0	43	20
21	42	21	42	42	43	3	43	24	43	45	44	6	44	27	44	48	45	9	45	30
22	44	22	44	44	45	6	45	28	45	50	46	12	46	34	46	56	47	18	47	40
23	46	23	46	46	47	9	47	32	47	55	48	18	48	41	49	4	49	27	49	50
24	48	24	48	48	49	12	49	36	50	0	50	24	50	48	51	12	51	36	52	0
25	50	25	50	50	51	15	51	40	52	5	52	30	52	55	53	20	53	45	54	10
26	52	26	52	52	53	18	53	44	54	10	54	36	55	2	55	28	55	54	56	20
27	54	27	54	54	55	21	55	48	56	15	56	42	57	9	57	36	58	3	58	30
28	56	28	56	56	57	24	57	52	58	20	58	48	59	16	59	44	60	12	60	40
29	58	29	58	8	59	27	59	56	60	25	60	54	61	23	61	52	62	21	62	50
30	60	30	61	0	61	30	62	0	62	30	63	0	63	30	64	0	64	30	65	0
	121		122		123		124		125		126		127		128		129		130	

G	121 G	121 M	122 G	122 M	123 G	123 M	124 G	124 M	125 G	125 M
31	62	31	63	2	63	33	64	4	64	35
32	64	32	65	4	65	36	66	8	66	40
33	66	33	67	6	67	39	68	12	68	45
34	68	34	69	8	69	42	70	16	70	50
35	70	35	71	10	71	45	72	20	72	55
36	72	36	73	12	73	48	74	24	75	0
37	74	37	75	14	75	51	76	28	77	5
38	76	38	77	16	77	54	78	32	79	10
39	78	39	79	18	79	57	80	36	81	15
40	80	40	81	20	82	0	82	40	83	20
41	82	41	83	22	84	3	84	44	85	25
42	84	42	85	24	86	6	86	48	87	30
43	86	43	87	26	88	9	88	52	89	35
44	88	44	89	28	90	12	90	56	91	40
45	90	45	91	30	92	15	93	0	93	45
46	92	46	93	32	94	18	95	4	95	50
47	94	47	95	34	96	21	97	8	97	55
48	96	48	97	36	98	24	99	12	100	0
49	98	49	99	38	100	27	101	16	102	5
50	100	50	101	40	102	30	103	20	104	10
51	102	51	103	42	104	33	105	24	106	15
52	104	52	105	44	106	36	107	28	108	20
53	106	53	107	46	108	39	109	32	110	25
54	108	54	109	48	110	42	111	36	112	30
55	110	55	111	50	112	45	113	40	114	35
56	112	56	113	52	114	48	115	44	116	40
57	114	57	115	54	116	51	117	48	118	45
58	116	58	117	56	118	54	119	52	120	50
59	118	59	119	58	120	58	121	56	122	55
60	120	60	122	0	123	0	124	0	125	0
	121		122		123		124		125	

G	126 G	126 M	127 G	127 M	128 G	128 M	129 G	129 M	130 G	130 M
31	65	6	65	37	66	8	66	39	67	10
32	67	12	67	44	68	16	68	48	69	20
33	69	18	69	51	70	24	70	57	71	30
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35	73	30	74	5	74	40	75	15	75	50
36	75	36	76	12	76	48	77	24	78	0
37	77	42	78	19	78	56	79	33	80	10
38	79	48	80	26	81	4	81	42	82	20
39	81	54	82	33	83	12	83	51	84	30
40	84	0	84	40	85	20	86	0	86	40
41	86	6	86	47	87	28	88	9	88	50
42	88	12	88	54	89	36	90	18	91	0
43	90	18	91	1	91	44	92	27	93	10
44	92	24	93	8	93	52	94	36	95	20
45	94	30	95	15	96	0	96	45	97	30
46	96	36	97	22	98	8	98	54	99	40
47	98	42	99	29	100	16	101	3	101	50
48	100	48	101	36	102	24	103	12	104	0
49	102	54	103	43	104	32	105	21	106	10
50	105	0	105	50	106	40	107	30	108	20
51	107	6	107	57	108	48	109	39	110	30
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53	111	18	112	11	113	4	113	57	114	50
54	113	24	114	18	115	12	116	6	117	0
55	115	30	116	25	117	20	118	15	119	10
56	117	36	118	32	119	28	120	24	121	20
57	119	42	120	39	121	36	122	33	123	30
58	121	48	122	46	123	44	124	42	125	40
59	123	54	124	53	125	52	126	51	127	50
60	126	0	127	0	128	0	129	0	130	0
	126		127		128		129		130	

	131		132		133		134		135		136		137		138		139		140	
G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
1	2	11	2	12	2	13	2	14	2	15	2	16	2	17	2	18	2	19	2	20
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4	10	44	10	48	10	52	10	56	11	0
5	13	25	13	30	13	35	13	40	13	45
6	16	6	16	12	16	18	16	24	16	30
7	18	47	18	54	19	1	19	8	19	15
8	21	28	21	36	21	44	21	52	22	0
9	24	9	24	18	24	27	24	36	24	45
10	26	50	27	0	27	10	27	20	27	30
11	29	31	29	42	29	53	30	4	30	15
12	32	12	32	24	32	36	32	48	33	0
13	34	53	35	6	35	19	35	32	35	45
14	37	34	37	48	38	2	38	16	38	30
15	40	15	40	30	40	45	41	0	41	15
16	42	56	43	12	43	28	43	44	44	0
17	45	37	45	54	46	11	46	28	46	45
18	48	18	48	36	48	54	49	12	49	30
19	50	59	51	18	51	37	51	56	52	15
20	53	40	54	0	54	20	54	40	55	0
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22	59	2	59	24	59	46	60	8	60	30
23	61	43	62	6	62	29	62	52	63	15
24	64	24	64	48	65	12	65	36	66	0
25	67	5	67	30	67	55	68	20	68	45
26	69	46	70	12	70	38	71	4	71	30
27	72	27	72	54	73	21	73	48	74	15
28	75	8	75	36	76	4	76	32	77	0
29	77	49	78	18	78	47	79	16	79	45
30	80	30	81	0	80	30	82	0	82	30
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	166		167		168		169		170	
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4	11	4	11	8	11	12	11	16	11	20
5	13	50	13	55	14	0	14	5	14	10
6	16	36	16	42	16	48	16	54	17	0
7	19	22	19	29	19	36	19	43	19	50
8	22	8	22	16	22	24	22	32	22	40
9	24	54	25	3	25	12	25	21	25	30
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11	30	26	30	37	30	48	30	59	31	10
12	33	12	33	24	33	36	33	48	34	0
13	35	58	36	11	36	24	36	37	36	50
14	38	44	38	58	39	12	39	26	39	40
15	41	30	41	45	42	0	42	15	42	30
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17	47	2	47	19	47	36	47	53	48	10
18	49	48	50	6	50	24	50	42	51	0
19	52	34	52	53	53	12	53	31	53	50
20	55	20	55	40	56	0	56	20	56	40
21	58	6	58	27	58	48	59	9	59	30
22	60	52	61	14	61	36	61	58	62	20
23	63	38	64	1	64	24	64	47	65	10
24	66	24	66	48	67	12	67	36	68	0
25	69	10	69	35	70	0	70	25	70	50
26	71	56	72	22	72	48	73	14	73	40
27	74	42	75	5	75	36	76	3	76	30
28	77	28	77	56	78	24	78	52	79	20
29	80	14	80	43	81	12	81	41	82	10
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G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
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44	118	4	118	48	119	32	120	16	121	0	121	44	122	28	123	12	123	56	124	40
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60	161	0	162	0	163	0	164	0	165	0	166	0	167	0	168	0	169	0	170	0
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To

	171		172		173		174		175		176		177		178		179		180	
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3	8	33	8	36	8	39	8	42	8	45	8	48	8	51	8	54	8	57	9	0
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G	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M	G	M
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	171		172		173		174		175		176		177		178		179		180	